

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

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VOL. L. No. 17.
WEEKLY.

BALTIMORE, NOVEMBER 8, 1906.

\$4.00 A YEAR.
SINGLE COPIES, 10 CENTS.

Manufacturers' Record.

PUBLISHED EVERY THURSDAY BY THE
MANUFACTURERS' RECORD PUBLISHING CO.

BALTIMORE.

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Subscription, - - - - - \$4 a year
(payable in advance) to United States,
Canada, Mexico, Cuba, Porto Rico, Hawaii
and the Philippines.
To Foreign Countries in the Postal Union,
\$6.50 a year.

(Entered at the Baltimore Postoffice as sec-
ond-class matter.)

BALTIMORE, NOVEMBER 8, 1906.

CHANGE IN INDEX OF ADVERTISEMENTS.

A new arrangement of the alphabetical index of advertisements and the classified index of articles advertised has been made, commencing with this week's issue of the MANUFACTURERS' RECORD. The former will be found on page 54 and the latter from page 56 to page 64. This change in the location and arrangement of the indexes is made necessary by the rapid expansion of the advertising business of the MANUFACTURERS' RECORD. Carrying, as we are now doing, the advertisements of about 1000 of the foremost business houses in America, our advertising pages are in reality an encyclopedia of information. No man who wants to buy or to sell machinery, who wants to keep in touch with the most modern improvements in all lines of machinery from the building of a gin to the building of a cotton mill or a furnace or the opening of a coal mine or the construction of a railroad, can afford to miss a careful study from week to week of our advertising pages. Here is a vast storehouse of information, not only a "buyers' guide," but a "sellers' guide"—a guide for all who are taking part in the great panorama not only of Southern, but of American development. In this, the most wonderful industrial period which man has ever known, one in which the moving panorama of human activities and human accomplishments stirs the pulse and quickens the heart-beat, the MANUFACTURERS' RECORD in its advertising pages is an essential part of this ever-moving picture which no man can afford to miss.

TO PULL TOGETHER FOR THE WHOLE COUNTRY.

The elections are over, and the thought and energy of the press and the people, which for the last few months have been given largely to the discussion of candidates, can now be turned to the discussion of business. Instead of centering thought upon the pros and cons of a political campaign, instead of giving attention either for or against the "gospel of hate" which has been so vigorously preached in denunciation of every tangible business interest and of almost every public man, we can now think of the matchless opportunities in this country for every man and boy who wants to work and to make a success of life. We can think of the resources of this country, which in extent and variety and in wealth-creating possibilities are not rivaled elsewhere on earth. We can think of the stress and strain of our railroads as they seek to carry the business which is now being offered far beyond their facilities, and contrast it with receiverships and bankruptcies of days when every ton of freight was being scrambled for. We can think of how every manufacturing enterprise from the far North to the far South and from the Atlantic to the Pacific is burdened with business and with prosperity. We can think of how employers are everywhere hunting for men and begging laborers to work, and contrast this with conditions 10 years ago when probably a million or more men were walking the streets in idleness vainly searching for work even at starvation wages. We can contrast the pessimism of that day with the optimism and joy of the present, and then we can fix our thought upon the illimitable opportunities which are before us. Only at the beginning, the very threshold of its gradual material upbuilding, the United States as a whole, and the South pre-eminently as a part, have before them such possibilities as we could never have conceived or thought of even a few years ago. Putting behind us the vexations and the contests of politics, we can now turn with renewed energy, with still greater optimism, to the future. And surely if ever a nation had cause to rejoice in its blessings and to make the accomplishments of today the stepping-stone for higher things tomorrow, this nation, favored of Heaven, is the one.

Advertisements of Southern localities offering special advantages for the location of manufacturing enterprises will be found on pages 75, 76 and 77.

On another page of this week's issue of the MANUFACTURERS' RECORD is published an article on the cement possibilities of Alabama by Mr. L. C. Lane of Demopolis, who for four years has been in Alabama as a civil engineer on the construction by the General Government of a system of locks and dams on the Warrior and Tombigbee rivers. During that time he has become much interested in the possibilities of the Portland-ce-

ment manufacturing industry in the State. Expressing his interest in the MANUFACTURERS' RECORD he writes:

I consider the publication one of the prime factors along the line of Southern development. I have spent some time in the West and in the Central North, but have never been so impressed in those sections with the possibilities of industrial development as I have during the four years I have spent in the South, and I take pleasure in commending most highly the MANUFACTURERS' RECORD for the good work it is doing.

INCREASING INDUSTRIAL POWER OF THE SOUTH.

Notable as is the speed of the South's advance in industrial productivity as compared with the rest of the country, it is not more notable than the speed of the South's advance in industrial equipment. In the latest five-year census period the value of the factory products increased from \$1,239,745,459 to \$1,787,976,325, or by \$548,230,866, equal to a

States.	1900.	1905.	Increase.	Increase %
Alabama.....	\$72,109,929	\$109,169,922	\$37,059,993	51.3
Arkansas.....	39,887,578	53,864,394	13,976,816	35
District of Columbia.....	16,426,408	18,359,159	1,932,751	11.7
Florida.....	34,183,569	50,298,290	16,114,721	47.1
Georgia.....	94,532,368	151,040,455	56,508,087	59.7
Kentucky.....	126,508,999	159,753,968	33,244,969	26.2
Louisiana.....	111,397,919	189,379,502	77,981,583	69.9
Maryland.....	211,076,143	243,375,996	32,299,853	15.3
Mississippi.....	33,718,517	57,451,445	23,732,928	70.3
North Carolina.....	86,274,083	142,520,776	56,246,693	65.1
South Carolina.....	53,335,811	79,376,262	26,040,451	48.8
Tennessee.....	92,749,129	137,960,476	45,211,347	48.7
Texas.....	92,894,433	150,528,389	57,633,956	62.4
Virginia.....	108,644,150	148,856,525	40,212,375	37
West Virginia.....	67,090,822	99,040,676	32,033,854	47.9
Total.....	\$1,239,745,459	\$1,787,976,325	\$548,230,866	44.2
Total United States.....	11,411,121,122	14,802,147,087	3,391,025,965	29.7

rate of 44.2 per cent. in the South, and in the rest of the country from \$10,171,375,663 to \$13,020,170,762, or by \$2,848,795,099, equal to a rate of 28 per cent. This greater rate of advance in the South in comparison with the rest of the country is even more marked in the case of various forms of industrial power. The capital power increased during the period under review from \$968,466,607 to \$1,597,636,872, or by \$629,170,265, equal to 64.9 per cent., in the South, and from \$8,010,358,593 to \$11,088,628,801, or by \$3,078,270,208, equal to 38.4 per cent., in the rest of the country; the

States.	1900.	1905.	Increase.	Increase %
Alabama.....	\$60,165,904	\$105,382,859	\$45,216,955	75.1
Arkansas.....	25,384,636	46,306,116	20,921,480	82.4
District of Columbia.....	17,960,498	20,199,783	2,239,285	12.5
Florida.....	25,682,171	32,971,982	7,289,811	28.3
Georgia.....	79,305,316	135,211,551	55,906,235	70.4
Kentucky.....	87,966,822	147,382,478	59,415,656	67.3
Louisiana.....	100,874,729	150,810,908	49,936,179	49.5
Maryland.....	149,155,313	201,877,966	52,722,653	35.3
Mississippi.....	22,712,186	50,256,309	27,544,123	121.2
North Carolina.....	68,283,005	141,000,639	72,717,634	106.4
South Carolina.....	62,750,027	113,422,224	50,672,197	80.7
Tennessee.....	63,140,667	102,439,481	39,298,814	62.2
Texas.....	63,650,016	115,064,871	51,414,855	81.5
Virginia.....	92,299,589	147,989,182	55,689,593	60.3
West Virginia.....	49,103,138	86,820,823	37,717,685	76.8
Total.....	\$968,466,607	\$1,597,636,872	\$629,170,265	64.9
Total United States.....	8,978,825,200	12,686,265,573	3,707,440,373	41.3

horse-power, including steam, gas, water, electric and all other powers, of the establishments reporting, from 1,735,596 to 2,550,729, or by 815,133, equal to 46.9 per cent., in the South, and from 8,674,029 to 11,914,211, or by 3,240,182, equal to 37.3 per cent., in the rest of the country, and the man power, represented by salaried officials, clerks and the average number of wage-earners, from 708,366 to 927,833, or by 219,467, equal to 29.7 per cent., in the South, and from 4,310,859 to 5,062,239, or by 751,-

380, equal to 17.4 per cent., in the rest of the country.

It is interesting to note that though there has been a decline in productivity, both in the South and in the rest of the country in proportion to the horse-power and the capital power in industry, there has been an increase in proportion to man power, and that while the decrease in capital productivity in the South has been greater than that in the rest of the country, the decrease in horse-power productivity has been less and the increase in man-power productivity has been greater in the South than in the rest of the country. The value of products for every dollar of capital decreased from \$1.28 to \$1.12 in the South and from \$1.26 to \$1.17 in the rest of the country, and for every one horse-power from \$714 to \$700 in the South, and from \$1172 to \$1092 in the rest of the country, while it increased for each man power from \$1613 to \$1927, or by \$314,

equal to 19.4 per cent., in the South, and from \$2359 to \$2572, or by \$213, equal to 9 per cent., in the rest of the country.

Consideration of the figures for the several powers by States, presented in the accompanying tables, brings out a number of valuable suggestions. In the actual amount of the value of products but four Southern States—Alabama, Maryland, South Carolina and West Virginia—and the District of Columbia maintained in 1905 their relative rank of 1900, Maryland leading the South with \$243,375,996, and the District of Columbia making the smallest showing,

\$18,359,159. The 1905 figures showed Louisiana, \$186,379,502, moved from third place to second; Kentucky, \$159,753,968, from second to third; Georgia, \$151,040,455, from fifth to fourth; Texas, \$150,528,389, from sixth to fifth; Virginia, \$148,856,525, from fourth to sixth; North Carolina, \$142,520,776, from eighth to seventh; Tennessee, \$137,960,476, from seventh to eighth; Mississippi, \$57,451,445, from fourteenth to twelfth; Arkansas, \$53,864,394, from twelfth to thirteenth, and Florida, \$50,-

298,290, from thirteenth to fourteenth; Alabama, \$109,169,922, remains ninth; West Virginia, \$99,040,676, tenth, and South Carolina, \$79,376,202, eleventh.

In the actual amount of capital seven States maintained their relative rank, and in 1905 stood Maryland, \$201,877,906, first; Louisiana, \$150,810,008, second; Virginia, \$147,989,182, third; Ken-

Horse-power.				
States.	1900.	1905.	Inc.	Inc. %.
Ala.	176,270	301,851	125,581	70.1
Ark.	79,539	111,216	31,677	39.4
D. C.	10,503	13,357	2,854	27.1
Fla.	35,496	45,373	9,877	27.8
Ga.	137,529	229,511	91,982	66.8
Ky.	145,854	181,441	35,587	24.4
La.	190,850	255,397	64,547	33.8
Md.	135,493	180,963	45,470	33.5
Miss.	65,946	111,197	45,251	68.6
N. C.	156,306	219,762	63,456	40.5
S. C.	113,573	221,190	107,617	94.7
Tenn.	131,141	180,131	48,990	37.3
Texas.	116,984	170,522	53,538	45.7
Va.	141,491	185,282	43,791	30.9
W. Va.	92,321	143,001	50,680	54.8
Total.....	1,735,596	2,550,729	815,133	46.9
Total U. S.	10,409,625	14,464,940	4,055,315	38.9

tucky, \$147,282,478, fourth; Texas, \$115,664,871, seventh; West Virginia, \$86,820,823, eleventh, and Arkansas, \$46,306,116, thirteenth, with District of Columbia, \$20,199,783, fifteenth. North Carolina, \$141,000,639, moved from sixth to fifth place; Georgia, \$135,211,551, from fifth to sixth; South Carolina, \$113,422,224, from ninth to eighth; Alabama, \$105,382,859, from tenth to ninth; Tennessee, \$102,439,481, from eighth to tenth; Mississippi, \$50,256,309, from fourteenth to twelfth, and Florida, \$32,971,982, from twelfth to fourteenth.

The rate of advance in horse-power in five States—South Carolina 94.7 per cent., Alabama 70.1, Mississippi 68.6, Georgia 66.8 and West Virginia 54.8—was above the average for the South, 46.9 per cent., and in three other States—Texas 45.7, North Carolina 40.5 and Arkansas 39.4—above the average for the rest of the country, 37.3 per cent. One phase of horse-power, electric, increased from 37,772 to 142,710, or by 104,938, equal to 277.8 per cent., in the South, and from 445,451 to 1,437,090, or by 991,639, equal to 223.3 per cent., in

Electric Power.				
States.	1900.	1905.	Inc.	Inc. %.
Ala.	3,421	10,114	6,693	195.9
Ark.	480	2,191	1,711	356.2
D. C.	348	1,761	1,413	406.3
Fla.	302	2,960	2,658	880.1
Ga.	2,698	15,556	12,858	476.9
Ky.	3,415	10,690	7,275	213
La.	2,069	6,752	4,683	226.3
Md.	4,174	18,823	14,649	350.9
Miss.	590	1,367	777	131.7
N. C.	2,733	5,553	2,820	103.2
S. C.	6,061	32,172	26,111	430.8
Tenn.	2,193	6,586	4,393	200.3
Texas.	3,217	10,289	7,072	220.1
Va.	5,617	12,687	7,070	125.8
W. Va.	454	5,199	4,745	1045.1
Total.....	37,772	142,710	104,938	277.8
Total U. S.	493,223	1,579,800	1,086,577	220.3

the rest of the country. The rate of advance in this form of power in six States—West Virginia 1045.1 per cent., Florida 880.1, Georgia 476.9, South Carolina 430.8, District of Columbia 406.3, Arkansas 356.2 and Maryland 350.9—was above the average for the South, and in two other States—Louisiana 226.3 and Texas 220.1—above the average for the rest of the country. The rate of advance in the power represented by the number of wage-earners in seven States—Mississippi 44.3 per cent., Louisiana 36.6, West Virginia 32.2, Tennessee 31.7, Texas 27.1, South Carolina 26.4 and Virginia 21.2—was above the average for the South, 18.9 per cent., and in three other States—Florida 18.6, North Carolina 17.9 and Alabama 17.9—above the average for the rest of the country, 15.5 per cent. In capital power the rate of advance in nine States—Mississippi 121.2 per cent., North Carolina 106.4, Arkansas 82.4, Texas 81.5, South Carolina 80.7, West Virginia 76.8, Alabama 75.1, Georgia 70.4 and Kentucky 67.3—was above the average, 64.9 per cent., for the South, and in three other States—Tennessee 62.2, Virginia 60.3

and Louisiana 49.5—above the average, 38.4 per cent., for the rest of the country. In each of the Southern States save two the rate of advance in the value of products was above the average, 28 per cent., for the rest of the country, and only four of the States were below the average, 44.2 per cent., for their section. The percentages by States were as follows: Mississippi, 70.3; Louisiana, 67.3; North Carolina, 67.1; Texas, 62.4; Georgia, 59.7; Alabama, 51.3; South Carolina, 48.8; Tennessee, 48.7; West Virginia, 47.9; Florida, 47.1; Virginia, 37; Arkansas, 35; Kentucky, 26.2, and Maryland, 15.3.

Judged by its rank in the rates of advance, first as to man power, first as to capital power, third as to horse-power and first as to value of products, Mississippi would appear to have been the center of relative industrial advance during the five years, although it ranks only twelfth in the value of its factory products. But the activity in that State is really typical of the activity throughout the South affecting in one degree and another the older manufacturing States as well as those which have

Wage-earning Power.				
States.	1900.	1905.	Inc.	Inc. %.
Ala.	52,711	62,173	9,462	17.9
Ark.	31,525	33,089	1,564	4.9
D. C.	6,155	6,299	144	2.3
Fla.	35,471	42,091	6,620	18.6
Ga.	83,326	92,749	9,423	11.2
Ky.	51,735	59,794	8,059	15.5
La.	40,878	55,859	14,981	36.6
Md.	94,170	94,174	4	.0
Miss.	26,799	38,690	11,891	44.3
N. C.	72,322	85,339	13,017	17.9
S. C.	47,025	59,441	12,416	26.4
Tenn.	45,963	60,572	14,609	31.7
Texas.	38,604	49,066	10,462	27.1
Va.	66,223	80,285	14,062	21.2
W. Va.	33,080	43,758	10,678	32.2
Total.....	725,997	863,379	137,382	18.9
Total U. S.	4,715,023	5,470,321	755,298	16

really only begun to realize upon their wonderful power in the shape of natural resources of material for industry, the vast water-powers, the coal and the petroleum for fuel, light and heat, the iron ore, limestone, timber, phosphate rock, lead and zinc and the millions of acres productive of the fiber for the cotton industry. When upon these latent powers in materials has been brought to bear the necessary capital power, horse-power and man power, the figures of Southern factory productivity of today will be comparatively insignificant. Sidelights upon possibilities are given in the facts that though all the wooded area of the country is by no means producing now merchantable timber, the 439,100 square miles of wooded area in the South is 54.4 per cent. of the total area of that section, while the 655,100 square miles of wooded area in the rest of the country is but 32.3 per cent. of the rest of the country's area; that while the 82,905 square miles of coal lands of the South is 23.2 per cent. of the total

Salaried Power.				
States.	1900.	1905.	Inc.	Inc. %.
Ala.	2,259	3,763	1,504	66.6
Ark.	1,549	2,328	779	50.3
D. C.	957	1,006	49	5.1
Fla.	1,781	3,125	1,344	75.4
Ga.	3,815	6,104	2,289	60
Ky.	5,356	5,853	497	9.3
La.	3,576	5,977	2,401	67.1
Md.	6,741	8,624	1,883	27.9
Miss.	1,260	2,688	1,428	113.3
N. C.	2,894	4,072	1,178	40.7
S. C.	1,419	2,389	970	68.2
Tenn.	3,329	4,910	1,581	47.4
Texas.	2,861	5,753	2,892	101
Va.	3,828	4,970	1,142	29.8
W. Va.	1,744	2,892	1,148	65.8
Total.....	42,369	64,454	22,085	52.1
Total U. S.	364,202	519,751	155,549	42.4

coal lands of the country, the South is only producing 18.3 per cent. of the total coal output, with much of its known coal area hardly begun to be developed; that the South's iron-ore deposits already discovered are likely to become a main dependence for the iron and steel industry in this country, and that the trend of petroleum production has been for years steadily Southward.

RAILROADS AS A MANAGER SEES THEM.

The speech recently delivered by President Samuel Spencer of the Southern Railway at the fair grounds of the Alabama Agricultural Association, Montgomery, Ala., was a most interesting and enlightening discourse on the relationship of the railroads to the people. Mr. Spencer is a native Southerner, and during all his years of railroad work has been identified with Southern interests. His speech displayed great breadth of view and a full and earnest comprehension of the duties of railroads to the public and of the duty which the public owes to the railroads. He pointed out the fact that when railroad construction began years ago for the purpose of developing the manifold resources of the country the public relations of the lines were largely lost sight of, but now, reacting, public opinion considers now almost altogether the public nature of railroads, little recognizing or considering the private rights of those who have invested money therein. Justice, he said, was between the two extremes of view. The properties and their owners should be required to faithfully perform their public duties under reasonable rates and practices with full publicity, without discrimination and without favor. When that obligation was performed the remainder was private property entitled to consideration and protection equal at the hands of the public and of the government to all other private property.

Continuing, President Spencer said that the most pressing problem before every railway property and every railway manager of the South today is that of providing additional facilities for the safe, prompt and satisfactory movement of the constantly-growing traffic. This has been the case for nearly 10 years, and the problem is more pressing today than at any previous time. He did not claim that the railways had at all times done all that was required by the public, but said that, bearing in mind the enormous and sudden growth in Southern products and Southern commerce for the last 10 years, and remembering the conditions of the railway properties at the beginning of that period, the fact that the products of so marvelous a development have on the whole been successfully moved to market challenged the attentive consideration of those who impartially study the railway problem.

Studying the financial needs of the companies and the difficulties under which they have labored to provide facilities for the public and at the same time to make such returns to their owners as would insure ability to command additional capital when required, Mr. Spencer pointed out that higher wages and also higher prices for everything the railroads can supply had come about. The cost of lumber had doubled in 10 years, the price of rails had also heavily increased and locomotives and cars likewise experienced tremendous advances, yet the cost of railway transportation was kept at the same or at lower figures, and that notwithstanding that increased taxes also added to the cost of operating. If the demand for lower rates persisted and the increasing cost of everything needed by the railroads continued the financial strength of the companies could not survive indefinitely, because a point would be reached where the increase in the amount of traffic would not suffice to maintain credit. Upon this point he said that nothing would avert the public calamity of such conditions except the ultimate conservatism and sense of justice of the American people,

in which characteristic he still had faith.

Touching upon the question of rates, the speaker pointed out how they had been adjusted to aid the development of industries situated at a distance from consuming markets, and explained that it was impossible to justly regulate rates by some arbitrary power. His declaration that almost all rates are the result of active and current commercial conditions arising long after the capitalization of railroads was fixed demonstrated the point of view from which the skilled traffic manager is obliged to consider the problem which lies before him. He furthermore said that when the story of the South's progress and prosperity was considered and the place of commercial supremacy she is rapidly attaining was contemplated he thought justice required admission that on the whole the work of the railroads had been well and efficiently done. It was said that railroads had the power to make or mar the fortunes and destinies of localities and sections. If this were true, what was the lesson to be drawn from the great and unprecedented prosperity of the Southern States? Primarily due to the energy, industry and intelligence of the people, it must be admitted that it has not been prevented, and in view of its amazing proportions, which are exciting the wonder of the world, it would not justly be claimed that it had been retarded by inadequate or inefficient transportation facilities.

President Spencer's speech is a timely contribution to the mass of spoken and written material concerning the railroads, now and recently much in the public mind. His reasonings are logical, and should command serious attention, because there has been a wide disposition to regard transportation companies in the light of oppressors, a kind of condemnation which, if persisted in, would result harmfully to the borrowing capacity of the roads and thus prevent them from supplying the very betterments and facilities for which there is so pressing a demand.

DISCREDITABLE METHODS IN SOCIAL REFORM.

Newspapers of the country received by mail last week and some Southern ones swallowed, without questioning, an alleged piece of news circulated, quite appropriately, on a yellow sheet of paper from a Northern city, but with a Columbus, Ga., date line. The stuff, a case of false pretense itself, assumes apparently to bolster a defective piece of "child-labor" legislation in Georgia, and reveals its own utter worthlessness and reflects the dominant methods of the anti-"child-labor" campaign in this country by giving publicity to the following outrageous reflection upon Georgia:

Scarcely any of the children in Georgia have ever attended school.

It would be interesting to hear from such distinguished Georgians as Hoke Smith and Clark Howell on that point. We feel sure that, though they have lent their names to one phase of the agitation, they would be quick to resent the unjustified statement of the yellow slip. Yet there are not a few honest, but misinformed, Southern men and women who seem not to know why the MANUFACTURERS' RECORD and other lovers of truth acquainted with the facts in the case oppose this "child-labor" agitation. These honest folk, including some of those who have lent their names to the agitation, have undoubtedly forgotten, if they ever knew, that that campaign in the South was born in a union of deliber-

ate false pretense and the unintended misstatements and exaggerations of ignorance, and that the so-called public opinion which has been reflected in defective "child-labor" legislation has been worked up by various forms of inability or disinclination to assemble statements accurately.

Really, such Georgians as Hoke Smith and Clark Howell should make it a point to discover who paid for the circulation, in good faith, probably, on the part of the circulating agency, of this matter on the yellow sheet of paper "sent out in advance with the respectful but earnest request that no use whatever will be made of it until it is released Sunday, November 4." Who wrote this stuff, circulated with the design to create the impression that it had come direct from Columbus, Ga.? How were the expenses of its circulation met? How can the children of the country be benefited by a social movement dependent upon such methods for its promotion. How can truthfulness and uprightness of character be developed by any wandering from facts? How can anyone hope for honest results from improper methods?

SOUTH INJURED BY FAKE IMMIGRATION SCHEMES.

A dispatch from Atlanta to the New York Commercial, dealing with alleged mistreatment of laborers in the South sent there from outside, says:

While the Southern manufacturer may be guilty in certain instances, a large part of the blame may be laid to so-called immigration bureaus. Most of these agencies are in New York, according to the federal authorities here, and they have inveigled a number of immigrants South under false pretenses. According to statements made by local manufacturers who are not connected with the charges, the Eastern agencies have been practicing cruelties and deception that have not only deceived the immigrant, but also the manufacturer.

This is an old story among persons who have disinterestedly been working for years in behalf of Southern immigration, and who have done their best to counteract the ill-effects upon the South of various schemes floated in New York or elsewhere, and given publicity unquestioningly by New York newspapers and by press service from that city. The fake character of some of these schemes have at times been so manifest in their own literature that it is amazing that Southern manufacturers or Southern State authorities could have been misled into giving them the slightest countenance. The latest manifestations only emphasize what the MANUFACTURERS' RECORD has repeatedly stated, and which was condensed in its issue of June 28 last, as follows:

A letter from one of the most efficient executive officers of a Southern business organization asking the MANUFACTURERS' RECORD what steps would be necessary to have his State represented in an immigration bureau to be established in New York city, suggests that perhaps it will not be amiss for us to reproduce here the gist of our reply. Our correspondent sent us a newspaper clipping announcing that 10 Southern States were to establish the bureau. We have no reliable information of any action by the authorities of the States mentioned providing for the establishment of an immigration bureau in New York city. We do not believe that, comprehending the situation as to immigration at New York, the authorities of the Southern States would regard it as profitable to unite in establishing such a bureau there. The great mass of immigrants of value to this country arriving at New York have determined upon their destination in this country before they leave Europe. United States Commissioner Robert Watchorn, in charge of immigration at New York, was quoted only the other day to the effect that out of every 400 immigrants that land at New York 399 know exactly where they are going, and that the best chance one had is to get them after they have reached their destination.

As a matter of fact, the place where State

energies should be exerted for immigration is in the foreign country from which it is desired to attract immigrants. . . . Our experience and observation lead us to view with disfavor plans for immigration to the South, no matter how "Southern" they may call themselves and no matter how good their intent may be, unless they are well conceived upon some such basis as the State immigration bureau of Maryland, the agricultural department of Virginia, the land and industrial department of such transportation lines as the Southern Railway and the Illinois Central and half a dozen other lines in the South, the bureau established at Atlanta by a number of railroads operating in Georgia or the organization recently effected in Louisiana providing for unified action by the State authorities and business organizations for immigration.

Conventions, conferences, congresses, parliaments, etc., assuming to be representative of the whole South in this matter, have seldom been representative of anything but ability in wind-jamming with borrowed bellows, a desire for brief notoriety in direct proportion to lack of capacity, or a purpose to create for one's self a salaried position for which there is really no demand, and in one recent case the designation "Southern" was used as a cover for an immigration scheme concocted abroad primarily for the benefit of a foreign country and holding the South's advantage as hardly of secondary importance. Such movements cannot be representative of the South for the simple reason that hardly any two Southern States have identical needs in the matter of immigration, and they usually have vanished into the thin hot air which they themselves have generated as soon as the attempt has been made to realize upon the idea of initiation fees or membership dues.

The MANUFACTURERS' RECORD has preserved the facts about the most promising of such undertakings during the past decade, and perhaps the most interesting fact about the gatherings, changing their titles as their pretenses have changed, is the persistence with which certain individuals have almost unvaryingly come to the front in them with enthusiasm, especially when there has been the scent of a salary, and an effrontery unappalled by the knowledge, which they ought to have, that the words of their dreams or fairy tales have been preserved in print and are readily comparable with later repetitions by themselves or by their understudies.

Southerners who would have successful immigration will do well to study and act upon all the details of the arrival at Charleston, S. C., this week of a shipload of picked immigrants from Europe. The details are published elsewhere in this issue of the MANUFACTURERS' RECORD. A State official went to Europe after the immigrants and accompanied them to South Carolina, where ample provision had been made to give them a hospitable welcome and to assure them of remunerative employment. Carried out on that plan, immigration to the South will increase with marvelous speed to the satisfaction of everybody concerned.

ASTRAY AGAIN.

Our enthusiastic, but frequently errant, friend, the *Biblical Recorder* of Raleigh, N. C., published last week the following:

It is scarcely possible to take the MANUFACTURERS' RECORD seriously when it charges the General Educational Board and the Southern Conference for Education with some sort of responsibility for the Atlanta riots. Now it only remains to fix upon the same body of public-spirited men some sort of responsibility for the failure of the Cuban republic to maintain itself and for the Gulf storm which did so much damage in Louisiana, Mississippi and Alabama. — *Religious Herald*. The MANUFACTURERS' RECORD is one of the ablest—and without doubt the most valuable paper in the South. But on the subject of the General Education Board it invents every week a new way to make itself absurd.

We are quite sure that the *Biblical Recorder* had not the least idea what it was discussing when it hung its absolutely erroneous statement about the General Education Board upon the criticism of the MANUFACTURERS' RECORD attributed to the *Religious Herald* of Richmond. We believe, however, that the *Biblical Recorder* might begin to

comprehend if it should recall that one who writes things for the *Religious Herald* said in the presence of negroes in Virginia, under Ogdenite auspices and without thinking of the effect of his words upon a certain class of negroes:

We are here to say to the colored people of this nation, "Friends, go up higher." I trust that the South is rising out of Saxonism into humanity.

It should bear in mind that in racial equality preaching and racial equality acting of Ogdenism, whether intended or not, lies the most stupendous danger to the negro race which it has ever faced. The MANUFACTURERS' RECORD wants to save the negro and the white alike from this.

TEXAS IRON-MAKING.

The Galveston News expresses righteous satisfaction over the success of the rehabilitation of the iron industry at Rusk, Texas, under the auspices of the penitentiary system of the State. An appropriation of \$150,000 for the erection of a new iron furnace induced a betterment of the equipment, including the installation of a new blowing engine and two new batteries of boilers, the enlargement of the iron-pipe foundry to three times its original capacity and the addition of a sadiron foundry. These improvements have been made in spite of the necessity of the works to run upon their own resources for two years in the absence of a legislative appropriation, and the results are very properly expected to encourage private capital to engage in the exploitation of East Texas iron deposits.

In connection with this matter Mr. W. T. Atkins, secretary of the Jefferson Iron Co., Jefferson, Texas, writes to the MANUFACTURERS' RECORD:

"In the report of Financial Agent Hon. John L. Wortham of the penitentiary system to Governor Lanham of this State, the following significant language is used:

"We have every reason to believe that we will be able to place in the State treasury \$150,000, an amount equal to the appropriation made for the rehabilitation of the iron foundry at Rusk, and yet leave the system in a healthy financial condition. For the first time in the history of the penitentiaries, the last Legislature failed to make the usual appropriation from the State treasury, and the system has been upon its own resources for the years 1905 and 1906."

"This is indeed a good showing for the iron interest of the State. It must necessarily attract attention of those seeking investments in iron properties. The State only makes piping and sadirons. In this iron district the iron interest could add to the pipe interest that of cotton ties, because it is in the geographical center of the crop made west of the Mississippi river, which equals one-half of the cotton crop of the South. In no section of the State are the indications of natural gas more pronounced than in and around Jefferson. Until within the past week the Caddo oil fields were in doubt; the gas was there in superabundance, but the oil question was unsolved. It was claimed large interests capped their wells for future development, and to dishearten the doubting ones. However, last week a real well was brought in, which gave confidence to everyone, and the work of development has begun in real earnestness. This is only about 28 miles east of this point. The tracing comes this way. Large interests own and control large tracts of lands in this county adjoining the Louisiana line by purchase and lease, which will now be developed. With natural gas, navigation, two of the largest railway systems in the Southwest intersecting here, the Missouri, Kansas & Texas and Texas & Pacific, thus making this an ideal distributing point

for the entire cotton fields west of the Mississippi, what more can or should capitalists wish? A large portion of the territory can be reached by water for both ties and piping. In no instance do I think I have overdrawn the picture, nor do I believe the most critical and exhaustive investigation will give anything but entire satisfaction. The iron of this district has no superior anywhere."

BEAUMONT.

An attractive pamphlet illustrating the resources and opportunities of that section in the immediate vicinity of Beaumont, Texas, has recently been issued by the Chamber of Commerce of that city. It tells in a brief yet forceful manner of the splendid facilities which it possesses from an industrial and commercial standpoint. The Neches river, on which Beaumont is situated, has an average depth of 35 feet to its mouth, where it flows into the Sabine lake and reaches the Gulf of Mexico through Sabine Pass. To increase the facilities of the commercial and shipping interests of this section the national Government is now building a canal at the cost of \$535,000. Beaumont is the center of a large rice-growing industry producing nearly 2,000,000 bushels a year, an oil production aggregating 30,000,000 barrels a year and extensive lumber interests, all of which present opportunities for further expansion, but in addition to these, which are the principal industries of this section, it possesses many other resources which but await the hand of progress to turn them into living industries. Surrounded by raw material above and beneath the earth, excellent transportation facilities, both natural and acquired, cheap fuel, abundant labor supply, agricultural resources, progressive citizenship organizing and encouraging industries and developing the mineral resources of this locality, render it an important industrial center of the Gulf coast and offer good opportunities to the prospective settler or investor.

DURHAM.

The advantages of Durham, N. C., as a manufacturing and business center are set forth in a complete and attractive manner in a pamphlet recently compiled and issued by the Chamber of Commerce of that city. With a population of nearly 20,000 inhabitants, it contains some of the most substantial manufacturing and business enterprises of the South. These include its large tobacco-manufacturing industries, for which it is noted the world over; cotton, hosiery and bag mills, lumber plants, medicine factories, fertilizer plants, brick plants and others of a widely-diversified character. Durham is 28 miles west of Raleigh, the State capital, and has five separate lines of railroad. It contains all the advantages of a modern city, including a complete water supply, sanitary sewerage system, 70 miles of streets, a number of which are paved with macadam, granite blocks and brick, gas and electric plants, an electric railway system and fire department. It also contains colleges and public schools, two hospitals, public buildings, modern hotels, churches of every denomination and five banks, including both national and savings banks. The assessed value of its real and personal property for 1906 is \$12,543,548.

BUILDING AT LITTLE ROCK.

Indicative of building activity at Little Rock, Ark., is the statement issued by the Board of Trade of that city on November 1 that work had begun on the new \$250,000 City Hall; that the steel work of the basement and first story of the \$250,000 office building of the Southern Trust Co. is nearly all in position; that contractors are nearing completion of the \$350,000 Marion Hotel, and that many more men are wanted for work on the Union Depot.

CEMENT POSSIBILITIES OF ALABAMA.

By R. C. LANE.

[Written for the Manufacturers' Record.]

The unparalleled development of the cement industry in the United States during the last 25 years has attracted considerable attention, although the import of this phenomenally fast-increasing industry, with all of its possibilities, has not been fully comprehended by the people at large, and strange to say, in many instances not even by people in close touch with opportunities for vast development along this line. The general observer of industrial progress looks with wonder upon the rapid development of the iron industry in the United States during the last quarter century, yet a glance at the following statement of the comparative growths of the cement and iron industries, as shown in the MANUFACTURERS' RECORD of July 5, 1906, fills one with amazement: "In 1880 the United States produced 3,800,000 tons of pig-iron; last year the total production was nearly 23,000,000 long tons, or a little over six times as much as the production of a quarter of a century ago. This is everywhere accepted as one of the most marvelous growths in industrial history, and yet it is not to be compared with the rate of growth of the manufacture of Portland cement. The creation of the Portland cement industry is one of the wonders of the industrial world. In 1880 the total output of Portland cement in the United States was 42,000 barrels; last year it was 34,000,000 barrels, or over 800 times as much; whereas in pig-iron production the output of 1905 was only about six times as much as that of 1880. So we seem to be but at the beginning of a development of the cement industry, which, while the rate of growth cannot, of course, continue at the same great percentage of increase as for the last quarter of a century, will at least, in all probability, continue as great in the actual figures of advance as of late years. As late as 1900 the total cement production of the country was only 8,400,000 barrels. The next year it jumped to 12,700,000 barrels, followed in 1902 by a gain of nearly 5,000,000 barrels, and reaching in 1903 an output of 22,300,000 barrels, from which there was an advance in 1905 to 34,000,000 barrels. Despite this stupendous expansion, probably never equaled in the history of any other industry, the demand for cement has been so great that prices have continued very high."

A bulletin issued by the Reclamation Service on April 29, and in part as follows, serves to portray the existing conditions as to supply and demand: "With 24 big irrigation projects under construction requiring hundreds of thousands of barrels of cement, the engineers are finding it next to impossible to obtain anything like the quantity needed. Recently proposals were requested from eight manufacturers and dealers in cement for 2000 barrels required on an Idaho project. Only one proposal was received, and that was at a rate 50 per cent. higher than the firm would have sold a few months ago. Still later invitations for bids were sent to 23 dealers. Again but one firm submitted a bid, and this was nearly 60 per cent. higher than the normal profitable rate of sale by this firm. Other attempts to purchase cement have been similarly unsuccessful."

Turning to the South, one is impressed with the wonderful possibilities for development along the line of cement manufacture. Out of 84 cement plants in operation in the United States in 1905, only five of these were located south of the Ohio and Potomac rivers and east of the Mississippi, yet probably no portion of the United

States promises more industrial development during the next quarter century or has made greater strides toward commercial and industrial upbuilding during the last few years than has the South. The result is that yearly thousands and thousands of barrels of cement are being received in our Gulf ports for distribution throughout the South, while Southern mills are entirely inadequate to supply the fast-increasing demand.

It is estimated that 12,000,000 barrels of cement will be needed to build the Panama canal, and as Congress has decided to use the domestic product if possible, as the following resolution shows, another channel will be opened for the disposition of cement, and no portion of the country will have a more favorable opportunity for furnishing this supply than will the South, with her navigable rivers and excellent Gulf ports. This joint resolution of Congress is as follows: "Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That purchase of material and equipment for use in the construction of the Panama canal shall be restricted to articles of domestic production and manufacture, unless the President deems the bids therefor to be unreasonable or extortionate, in which case bids may be invited and contracts awarded for material and equipment of foreign production or manufacture to the extent of the consumption of such articles that may be required in the construction of the said canal."

As it would be impracticable at present to consider in detail a great many localities in the South favorable for the manufacture of cement, the State of Alabama, and especially that portion of the State lying adjacent to the Warrior and Tombigbee rivers, will be considered, in which section is found an inexhaustible supply of cement material known as "Selma Chalk."

In reviewing the progress of the iron industry in the South one naturally turns to Alabama as a great iron-producing State, and, if her natural resources are such as would warrant it, one would naturally look for great development in the Portland cement industry. The production of pig-iron in the United States in 1905 was about 23,000,000 tons; the production of pig-iron in Alabama during that period was 1,604,062 tons, or about 7 per cent. of the production of the country at large. The production of Portland cement in the United States for 1905 was 34,000,000 barrels; in Alabama it consisted of the output of one factory with a maximum capacity of 150,000 barrels, whereas, to equal the percentage of the production of pig-iron as compared to the country at large (7 per cent.), it should have been 2,380,000 barrels, representing eight cement plants with a capacity of 300,000 barrels per year each. The only plant in operation in the State is that of the Alabama Portland Cement Co., located at Demopolis, which was established in 1899-1900; in 1905 no new industry of this kind had been established. The output of pig-iron in the State in 1899 was 1,083,905 tons, showing an increase in 1905 over 1899 of 520,157 tons, or 48 per cent. While the above figures show a decided lack of progress along the line of the Portland cement industry, prospects for a rapid development during the next decade are good. Several projects are now on foot for the establishment of Portland cement plants, and under the proper and careful management which they are likely to receive should prove very profitable investments.

In taking up the consideration of possible or practicable locations for Portland cement plants the following items are of prime importance, and will be taken up in the order given: Quantity and quality of raw material, transportation facilities and markets for finished product, available fuel supply and labor conditions.

It should be stated in advance of the discussion of the practicability of the establishment of the Portland cement industry in Central Alabama that the section here referred to is not taken as the only desirable territory found in the State, but simply in order that the actual existing conditions may be dealt with in detail rather than in general, as would be necessary should an attempt be made to discuss the many desirable locations that might be pointed out.

In the northern part of Alabama, that part lying around and north of the Birmingham district, is found an abundant supply of material admirably adapted to the uses of the cement manufacturer. Analyses of these materials show them to be practically identical with materials which have been used very successfully and profitably in other States. At present there is in course of construction at Leeds, Ala., a plant which will probably be put into operation in a few months. This plant, it is reported, will represent the expenditure of some \$600,000, and doubtless under good management will prove to be an excellent investment. Many localities in this portion of the State are splendidly located with reference to transportation facilities and fuel supply. Through this section, running east and west, is the Tennessee river, and in close proximity the lines of the Southern Railroad. Among other lines traversing this district will be found the lines of the Louisville & Nashville, Northern Alabama, Alabama Great Southern, Mobile & Ohio, Kansas City, Memphis & Birmingham and Central of Georgia, affording ample means of transportation to excellent markets, such as Chattanooga, Birmingham, Memphis, Atlanta, etc.

It is needless to dwell on the question of accessibility of fuel in this locality, as the vast fields of coal of the Birmingham district can supply abundantly and cheaply the needs of the industry. The next few years should bring forth a rapid development of the cement industry in this section of the State.

The Selma chalk formation is very extensive throughout the central portion of the State, being found in large quantities in Green, Sumter, Hale, Marengo, Perry, Dallas, Lowndes and Montgomery counties, and in thickness varying from 200 to 1200 feet. As to the quality of this material, detailed information can be had by referring to Bulletin No. 243 of the United States Geological Survey on "Cement Materials and Industry of the United States," by Mr. Edwin C. Eckel, and to Bulletin No. 8 of the State Geological Survey of Alabama on "The Cement Resources of Alabama," by Dr. Eugene A. Smith.

Mr. Edwin C. Eckel, in referring to this locality on page 74 of Bulletin No. 243 of the United States Geological Survey on "Cement Materials and Industry of the United States," says: "Inasmuch as suitable material for cement manufacture can be had in practically unlimited quantity all along the outcrop of the purer limestone of the middle division, the location of the plants for the manufacture of this product will be determined by other considerations than the quality of the rock."

The cost of mining and grinding this material should be much less on account of its soft composition than that of the hard limestones used in many localities. The work of excavating this material for footings for concrete lock walls has been

pursued successfully by the Government on the Tombigbee river by means of pick and shovel. This single item of the soft physical composition of the material should be considered as an important factor toward reducing the cost of production.

The transportation facilities through this section to the coal fields of North Alabama and to the Gulf ports and Panama are unexcelled by any locality where cement material exists. At present the Government has under course of construction a system of locks and dams on the Warrior and Tombigbee rivers, which, when completed, will give an open waterway with a minimum six-foot channel from the coal fields of Alabama to the sea, passing directly through this great cement field. This system, when completed, will represent the expenditure of about \$6,000,000. Four million dollars has already been spent, and it is confidently expected by all in touch with the work that at the coming short session of Congress the appropriation for the completion of this system will be made. These locks are of concrete construction, and it might be well to note that of some 20,000 barrels of cement bought of the Alabama Portland Cement Co. during 1905 for use on this work, not a barrel has failed to pass the Government requirement. With the completion by the Government of this system, at a cost of several million dollars, a careful, conservative estimate shows that coal can be placed in this district at a transportation cost of about 30 cents per ton, and that cement can be put into Mobile at a cost of 10 cents or less per barrel. Additional transportation facilities are the lines of the Southern and Alabama Great Southern railroads. Several good locations can be secured on both railroad and waterway, thus affording ideal facilities for shipping.

The plant of the Minona Portland Cement Co. promises to be one of the most successful industries of the kind located in the South. It will be located at Epps, Ala., on the Alabama Great Southern Railroad and the Tombigbee river, and has been promoted by Southern capitalists, who realize the great possibilities of this industry, chief among whom is Mr. Albert G. Parrish, president of the City National Bank of Selma, Ala., who has, with the assistance of some of the most able authorities in this country, made a thorough investigation of the proposition.

As such a small per cent. of the cement used in the South is at present manufactured there, it might be said that the whole South is open as a market for the Southern producer. The wonderful development along industrial and commercial lines in the Gulf ports and the building of the Panama canal render the possibilities of development in the Portland cement industry in the section here referred to unsurpassed. At the very lowest estimate 12,000,000 barrels of cement will be needed for the construction of the Panama canal. This would mean the use of the total production of a plant with a capacity of 2000 barrels per day for 20 years. A study of local conditions will show that there is no locality in this country more favorably situated, with reference to raw material, fuel supply and transportation facilities, than is this for filling the great oncoming demand at Panama.

As the production of every barrel of cement represents a consumption of from 200 to 300 pounds of coal, the item of fuel supply is one of prime importance. In this respect very few locations are better situated than this, with a navigable river into the heart of the vast coal fields, thus affording cheap transportation directly to the plant.

At present the Government employs about 250 men on the construction of a lock on the Tombigbee river. No difficulty

has been encountered in obtaining and holding this labor. Negro labor on public work is easy to procure, and no difficulty would be confronted in obtaining labor for this industry at a very reasonable cost.

With the promotion of many new enterprises in the South, and notably the building of the Panama canal, it is reasonable

to suppose that for some time to come, as in the last few years, the demand for this product will increase faster than the supply, and that prices will at least remain stationary. In view of these facts the State of Alabama seems to offer an exceptional chance of profitable investment in a practically new industry.

THE RIGHT WAY TO SECURE IMMIGRANTS

Nearly 500 Thrifty Foreign Workers Landed in South Carolina.

Nearly five columns of the *News and Courier* of Charleston, S. C., last Monday were filled with matter bearing upon the arrival in that city on Sunday of the North German Lloyd steamship Wittekind, bringing nearly 500 immigrants to South Carolina, selected in North European countries by Mr. E. J. Watson, the South Carolina Commissioner of Immigration. The space was well occupied, for the story is the record of a notable achievement in immigration work, which should be an inspiring example for the whole South. From the *News and Courier* are derived the following facts about the incident: The vessel landed, beside 21 cabin passengers, most of them prospectors, who came from Europe to study the country, and a full cargo of German kaint, 476 immigrants, of whom only four were not permitted to land finally by the immigration officials, who made special efforts to expedite matters. Other immigrants left Charleston Sunday night by special trains for new homes in different parts of the State. Commenting upon the matter, Commissioner-General of Immigration Sargent said:

"They were an exceptionally good class of people. We do not receive many ships containing a higher grade of settlers. As an average they were healthy, robust and able-bodied. The women were good looking, the children especially fine, and I tell you that altogether it was an exceptionally fine lot of people that have come to your State.

"Yes, you can say that the people brought here by Commissioner Watson are all right. They are as fine a lot of men and women—and don't forget the children—as I have seen. There were a few—very few—who were not up to the standard required by the Government regulations, but that was to be expected, and the percentage was really very small. As a whole, they were a fine lot of aliens and ought to make first-class citizens.

"What do I think about the possibilities of development and how this port can be made a considerable port of entry for immigrants? Why that depends entirely—well, better put it largely—on the results of this experiment. If these people are made welcome, if they are kindly treated, if they get good wages, then others are coming, and they will come this way; but if they report that they do not like it here it will have a bad effect. Then, again, it will depend largely on whether the inducements held out to them are faithfully carried out and whether these people are able to prosper here. You must remember that the class of people who have come in this cargo have done very well in their European home and they have come here to do better and to see that their children prosper. If they are pleased with their location, get good wages, receive kind treatment, are made welcome and the representations pan out, then they will write their friends that way, and I firmly believe that this section will receive a desirable and hardworking class of settlers. Any bad impressions on the part of these people will get home. If the

wages are not what they expected, if they are ill-treated, if they are not made welcome, then they will write home and their friends will naturally steer clear of this section.

"What about their coming to this port? That depends also to a large extent on how they are pleased with the State. It cannot be emphasized too strongly that these people are quick to communicate to their friends and relatives at home exactly what they are to expect here, and they follow each other. Another point is that they ought to be paid good wages. From what I saw of these people they are able-bodied and a good class of people, and no one can have a right to expect them to be cheap labor. They do not belong to that class.

"Wage-workers get the best pay they can, regardless of where their work takes them. These people have come here for wages, and they will get it here or elsewhere. Of course, they will remain here if they get the same pay as they can elsewhere.

"It seems to me that Charleston has opened up a great field, and I sincerely hope that it will succeed. Charleston ought to appreciate what it will mean. The first thing for Charleston to do is to insure good return cargoes. If the line is made permanent it will attract tourists to this port. People will come this way for information, for variety and possibly to invest money. Such a line, if regularly established, would mean a great deal in the way of advertising your port and in building up Charleston commercially. A regularly established line to and from Charleston will mean a great deal in very many ways in the commercial world. What people want to know is that they can come this way at stated times.

"For a beginning it is remarkable. Commissioner Watson deserves a great deal of credit for his success. He has a big job, but he has done wonderfully well. As soon as it gets noised abroad that Charleston is a desirable port and that people can come this way you are going to have less trouble to get good cargoes of people. It is truly a remarkable showing when you consider all of the disadvantages of a first trip of this sort. And then the fact that there are such nice people in this lot is evidence of the great care that Commissioner Watson took in the selection of the initial shipload."

In winding up his little talk Commissioner Sargent said that he really hoped the people of Charleston and of the South appreciated what this movement meant. He personally thought it a great thing for the South to bring here such a desirable class of help, and with proper treatment there would be no difficulty in keeping these good people here, but in their inducing others to follow them.

"Good workmen such as these are will stimulate those here to doing better work. These are my views, and I have thought this subject over carefully for a long time, and you can put me down as saying that I am prepared to do anything and everything that may come in my line to help this movement to the South, especially when it

brings such desirable classes of aliens here."

Commissioner Watson gave an interesting talk about his interesting experiences. He said:

"We left Bremen on October 18 at 1 o'clock P. M. and encountered bad weather almost the entire time coming over. For the last few days, however, the weather was all that could be desired." About the immigrants Mr. Watson said: "The list comprises pure Austrians, Servians, Croats, Galicians and Dutch. The Austrians are accustomed to working in jute and other mills, and are experts in their line of work. The Belgians work in the finest factories that can be found in the world, and they, too, are thoroughly familiar with their line of work.

"I have been able to obtain from the Belgian Government what no other State has ever been able to obtain, and that is, the official sanction of the Government to this immigration movement. Other States have tried to get this official sanction, but so far have failed. This I accomplished through Baron De Favereaux, the minister of foreign immigration affairs of Belgium, in conjunction with the Belgium commissioner of immigration, with the great assistance of Mr. Chapelle of Belgium, to whom much of the credit is due.

"The farm hands that came over are from the agricultural districts of Belgium, and lived near Ghent and St. Nicolas. We could have brought 200 more immigrants on this trip, but on the last day and after these 200 were ready to go one of the newspapers published an inflammatory article about the riots in Atlanta, which had the effect of scaring some of those who had intended to come over, but we hope to get them for the next steamer. Most of the immigrants come from a section of Europe where the conditions are very similar to South Carolina.

"I have established the following offices in Europe, each in charge of a competent man: Germany at Berlin, in charge of Theodor Bassler; Holland at Middleburg, not far from The Hague, in charge of D. S. Davidse, who lived in Florence several years ago; Denmark at Copenhagen, in charge of George E. C. Bancke, who has lived in this country. Offices have also been opened at Glasgow, London, Manchester, Bremen and Roubaux, and Sligo, Ireland.

"We did not bring over any Scandinavians, for the reason that by an agreement the Lloyd steamers do not bring over any steerage passengers of this nationality.

"When I first suggested to the directorate of the North German Lloyds the idea of running an immigrant ship to Charleston I was told that if I got together 150 immigrants one of the steamers would bring them to Charleston. I succeeded, however, in obtaining 476 immigrants and a full cargo for Charleston and a return cargo to Bremen, all of which was very pleasing to the directorate, and I have in writing the promise of Baron Von Pils, the director of the steerage traffic for the line, that he will do all in his power to encourage the movement and will lend his aid in making the line a permanent one. I have already 170 Dutch farmers booked for the next steamer. The reason that more farm hands were not brought on this trip is because farm contracts expire this month, and next month we will be able to obtain a great many of this class of immigrants. The religion of the immigrants brought over is principally Catholic and Lutheran."

In a justly enthusiastic editorial summary the *News and Courier* said:

"Hats off to Col. E. J. Watson, Commissioner of Immigration for South Carolina. He has performed the most valuable service for this State, a service that entitles

him to the thanks of all our people. He came into this port yesterday morning on board the North German ship Wittekind, bringing with him about 500 desirable people for settlement in South Carolina. A more carefully selected, promising company of immigrants has never been landed at any port in the United States.

"There was not one anarchist among them, not a single pauper or dependent person, not one who will find the process of assimilation into American citizenship other than a pleasant exercise. They came with their trunks and boxes and baskets, filled with such store of household goods as they could transport with them to this land of promise, not as contract laborers, but at the invitation of this State, and with the assurance from its official representative that they would find abundant opportunity here for profitable employment. Coming under such auspices, they are entitled to receive, and will receive, ample protection and encouragement from the State.

"Among the immigrants there are men, women and children, entire families and single persons, all intent upon becoming citizens of this State and country and aiding in the development of our marvelous material resources. There were skilled operatives in the cargo yesterday, all of whom have already found work in the cotton mills of the State, gardeners and farmers, workers in iron, machinists, glaziers, carpenters, laborers and servants, men and women who have been trained in their callings and who will find work exactly adapted to their several talents and a fair reward for their services wherever they are placed. One superb family of nine persons was landed as soon as the ship reached her wharf that, in the opinion of the United States Commissioner of Labor, are worth at least \$10,000 to the State of South Carolina, and there were other families in the lot who will make ideal citizens. They were all in the best humor, and it was noted by those who saw them how many refined faces there were among the voyagers and how many well-dressed people came ashore. They did not all speak the same tongue, but they were all evidently moved by the same spirit of enterprise, the spirit which has built up the great West, the spirit which will build up speedily the greater South. One of the immigration officers who came to Charleston to show us how to manage the business said yesterday that he had never seen a finer shipload of immigrants, and he rejoiced with the people of this State that so many potential American citizens had been added to the population of this Commonwealth.

"Too much praise cannot be bestowed upon Commissioner Sargent and his accomplished assistants. The South, and particularly Charleston and South Carolina, are under lasting obligations to him for the intelligent interest he has taken in this first experiment at direct immigration to the South. His splendid spirit has proved infectious. He has worked with Commissioner Watson most earnestly and with the best influence upon the situation, and to him we owe the most sincere thanks. To Dr. Stoner and Commissioner of Labor Neill and Assistant Commissioner Stump and Inspector Paul and Interpreter Rothe and Interpreter Spurber and all the rest of the experts who came to Charleston to help in making this movement a success we wish to express the thanks of the people of this city and the South. It is the beginning really of a new South, and these pioneers are richly deserving of our most profound gratitude. If we could only make Commissioner-General Sargent and his aides permanent residents of Charleston there would never be any doubt that the South would be filled speedily with the

best of the peoples in Europe; but as we shall not be able to keep them here very long, we must give the most earnest heed

to their good counsel and try to live up to the promises they have made for us and the faith they have in us."

CONCRETE AND CONCRETE WORK—I.

By ERNEST McCULLOUGH, Mem. West. Soc. Eng.,
Consulting Civil Engineer, Chicago.

A fond father one day rewarded his little son when he informed the folks at home that he stood next to the boy at the head of his class. After the coin had changed hands the man thought to ask how many scholars composed the class, and upon learning that it was a special class consisting of three bad boys, reflected that the point of view had much to do with classification of beginning and end.

If it is objected that this series of papers on concrete does not commence at the beginning, consider the numbers of points from which the subject may be approached. The average man sees concrete every day and thinks he knows something about it. To begin by telling about the manufacture of cement, the preparation of sand and stone and the composition of concrete would be wearisome to him. These things will be taken up later, but first we can take up concrete that is reinforced.

The advertisers have a great deal to say about it, and when a man thinks of building he is importuned to use the new material. Upon looking into the matter he finds so many patents and "systems" that he becomes afraid.

The term "reinforced concrete" is one of the few rarely good terms we find in the English language. Reinforced concrete is just reinforced concrete. *Beton arme*, the French call it, and for a wonder we follow their lead in giving the name, although a few men call it "concrete-steel," following the German "*Betoneisen*."

Concrete is wonderfully strong in compression, and will bear great loads without crushing. Made in the form of a beam, however, and spanning an opening, it will carry a very small load without breaking. This is because it is comparatively weak in cohesion and has slight tensile resistance. When properly reinforced with steel it can be made to carry great loads.

The theory is as follows: When a beam is loaded it bends. At the bottom the fibers stretch and at the top the fibers compress. There is a point near the middle of the depth where the fibers neither stretch nor shorten, and this is called the neutral axis or plane.

If the material of which the beam is composed is of a fairly uniform character the bottom stretches in the same proportion as the top compresses, and this is in proportion to the distance from the neutral axis. A beam of wood is uniform in shape and a beam of steel is made in the form of a letter I, because each of these materials is practically as strong in compression as in tension. Cast iron is six times as strong in compression as in tension; hence the bottom flange of a cast-iron beam has in it six times as much metal as the top flange.

Concrete is ten times as strong in compression as in tension; hence a theoretically perfect concrete beam should be in the shape of an inverted T, with the area of concrete below the neutral axis ten times the area of the concrete above. This is impossible from the very nature of the material, so the bottom part is reinforced with steel to supply the deficiency in tensile strength and cohesiveness.

The safe load for one square inch of concrete in compression is fixed at 500 pounds. The safe load in tension for steel varies from 10,000 to 16,000 pounds per square inch. This means, then, that one inch of steel will be as strong in the tension side of the beam as 20 or 30 inches of concrete

would be in the compression side. Other things, however, besides a mere comparison of relative strengths must be taken into account. The actual percentage of steel as compared with the concrete seldom exceeds 1 to 2 per cent. of the area of the cross-section of the beam.

Concrete expands and contracts under the influence of atmospheric change; so does every material. Steel expands and contracts in almost precisely the same degree as concrete, so the two materials are admirably suited to be combined. So long as the steel is enveloped in concrete it will be firmly gripped, and will also be protected from rusting. It is thus made imperishable. Cement concrete was used thousands of years ago, and is more durable than the best stone, so reinforced concrete is destined to last for centuries.

The concrete mania comes at a time when our forests are vanishing rapidly and the world has been facing a lumber famine. It can be used in nearly every situation where wood is admirable, and can be cast into forms resembling wood framing. A curious fact in this connection is that reinforced concrete beams are practically the same in size as wooden beams of the same strength. Reinforced columns are practically the same in size as wooden columns carrying the same loads.

The many patented systems confuse the average man, for the promoters have plenty of money to spend in advertising, and each presses the claims of his process or material strenuously. A short description, therefore, of the leading bars advertised cannot fail to be of interest.

Back in the fifties a Frenchman made some immense flower pots in which to exhibit some large plants. Not being able to pay for the making of monumental vases or jars, he constructed a frame of wire netting and plastered it inside and outside with cement mortar. It was a great success, and he abandoned gardening and commenced to make boats and all sorts of articles out of his "*beton arme*." It was many years before it was used for beams and arches, and the honor of that discovery belongs to an American.

Mr. Thomas Hyatt invented a new fire-proof floor, but could find no one in the United States to interest in it, so went to London. Steel was not made in quantity those days, and cast-iron and wrought-iron beams were used in buildings intended to be fire-resisting. Mr. Hyatt had a new idea for protecting the iron work from the direct action of flames and met with little success in promoting his idea, for he was last in a long list of inventors in that line. While in England his attention was attracted by the new "*beton arme*," and he experimented with it in making slabs.

In 1877 a series of experiments made for him startled engineers and practical builders and led to a serious consideration of the value of concrete reinforced on the tension side with metal. Good cement was hard to obtain then, and wrought iron was used for reinforcing. Little was known of the exact manner in which one material assisted the other, and the sudden development of steel-making, resulting in the adoption of steel to the exclusion of wrought iron in structural work, hindered the further development of reinforced concrete in England.

In San Francisco Mr. F. H. Jackson was licensed to work under the Hyatt patents and did some bold work. Mr. Ernest

Ransome, another San Francisco contractor, conceived the idea of using square bars twisted and the Ransome bar became known all over the world. Ransome was a hustler, and after securing patents secured cash and advertised. It pays to do it.

It is curious how ideas swing back and forth. Mr. Hyatt had an idea that the beams might split or shear on some line separating the tension side from the compression side, so he put vertical and diagonal ties in some of his experimental beams. By fastening the top and bottom of the beam together he thought to avert all splitting. As a result of the experiments he abandoned that idea. He believed, however, that his experiments showed a certain amount of roughness assisted to hold the reinforcement in place, so his patents not only covered the use of the iron or steel reinforcement, but also

the putting of bolts through the metal, the fastening to it of protuberances and the making of it into a fabric like wire netting or even gratings of bars.

English and American constructors, therefore, believed that some hold of a mechanical nature was necessary. It was this that led to Ransome twisting his rods. He wanted the grip. Unknowingly he secured something else, the full value of which is now realized.

The unequal results obtained in the tests for Hyatt lead us to believe that not enough attention was paid to the character of metal used in reinforcing the test beams. This, together with a faulty knowledge of the theory of beams, led to wrong conclusions. The Ransome bar, being so much better than anything tried, made it famous, and it was in use for years before someone stumbled on the truth.

FOR LIBERAL APPROPRIATIONS FOR WATERWAYS.

[Written for the Manufacturers' Record.]

The National Rivers and Harbors Congress, an organization which held its first meeting in Baltimore in 1901 and was again reorganized in January, 1906, is preparing to hold its third convention at Washington on December 6 and 7 next. At the recent reorganization an executive committee of 15 was selected from the various geographical sections of the United States to carry out the plans of the congress, which was at that time made permanent. The Hon. Jos. E. Ransdell of Louisiana, a member of the rivers and harbors committee of Congress, is chairman of the executive committee, and he and Mr. John A. Fox of Arkansas, a member of the same committee, have been traversing the entire United States since last January, appearing before various commercial organizations and river improvement associations in order to arouse universal interest in the matter of improved waterways and secure the co-operation of all sections in this national move. The executive committee is planning to hold the largest convention yet held in the history of the country in the interest of waterways on the 6th and 7th of next month, and Mr. Fox has been in Baltimore this week on his way to the Eastern cities to secure their co-operation and insure a large attendance at the Washington convention. In an interview with the MANUFACTURERS' RECORD Mr. Fox said:

"We believe that this question of waterway improvement and internal development is perhaps the greatest move before the American people today. Deep-thinking minds and exponents of economical questions frankly express themselves in stating that the policy of the Government has been too niggardly in the past in its attitude toward river and harbor improvement. The paramount aim of our association is to create a sentiment in the minds of the American people, through a system of education concerning the present condition of our waterways, that will cause Congress to appropriate at least \$50,000,000 a year for the river and harbor committee to devote to the projects now before it. These projects, which have been carefully investigated by the Board of Engineers, and of which careful surveys have been made, now aggregate more than \$400,000,000, and we feel that if Congress will undertake to carry out these projects upon some definite plan through what is known as contingent appropriations, they can all be finished within the next 10 years. Our Government has spent more than \$900,000,000 since 1898 upon war and its contingencies, and we have in no way felt the burden of such an expenditure. How much more readily, therefore, should our Government be induced to spend \$500,000,000

in internal developments during times of peace. The total amount expended by this Government on its rivers and harbors since its incipency has been only \$470,000,000, and yet Holland has spent \$1,500,000,000; France, \$1,120,000,000. Of this \$470,000,000, only about \$68,000,000 have been spent upon the Great Lakes, and as an evidence of the wisdom of such an expenditure it may be stated that statistics show that the saving resulting from this portion of the expenditure, due to reduced freight rates and increased tonnage, amounts to more than \$40,000,000 annually. Similar results, it can be shown, would accrue from the systematic improvement of our other great inland waterways, for the value of these improvements is measured not only by the direct commerce which they bear, but also by the reduced rates which they influence. It is estimated that \$15,000,000 will be required to improve the Missouri river from Omaha to its mouth, \$22,000,000 to improve the upper Mississippi from St. Paul to St. Louis, \$50,000,000 to improve the Ohio from Pittsburgh to Cairo, \$36,000,000 to improve the Mississippi river from St. Louis to New Orleans, and if these rivers were improved, so as to be navigable to the depth called for in their several projects, they would save to the producer and consumer upon the low-class freights, as measured by the statistics of 1905, \$167,000,000 annually, if they reduced rates in the territory contiguous to them on these low-class freights but one mill per ton per mile.

"Mr. Ransdell and myself have visited all sections of the Atlantic coast, the Gulf coast, the Pacific coast and the great Mississippi and its tributaries, and have found a most responsive awakening in regard to this matter wherever we have been. My mission here in Baltimore is to urge upon the various commercial bodies and upon your Mayor the necessity for this city taking an active interest in the convention next month. Many representative men, prominent in industrial and mercantile life throughout the various sections of the United States, have been asked to address the congress, and it is desired that there shall be sufficient delegates from the various States to influence their respective members to attend the convention and listen to its deliberation. In this way it is hoped that an effect may be created at the opening session of Congress to demonstrate that this move has grown too great to be disregarded.

"We have endeavored to make this organization national in every sense of the word, and we want the Eastern cities to feel that it is their congress, as well as it is the Western cities, and the Northern cities to feel that it is just as much theirs as the Southern cities. No especial proj-

ect is endorsed, each being allowed to stand on its own merits, our work being entirely devoted to creating a sentiment throughout the entire country that will make larger and annual appropriations possible.

"I go from here to Philadelphia, New York, Boston, Buffalo, Cleveland, Detroit and St. Louis, which I hope to reach by November 15, to be present at the large convention to be held there in the interest of a deep waterway from Chicago to the Gulf. From there I go to Kansas City, to be in attendance at the Trans-Mississippi Congress, where this question will no doubt come up for a prominent part. Mr. Ransdell and myself were both present at the meeting of the Upper Mississippi River Association, held in Minneapolis on the 10th of October, and at the meeting of the Ohio Valley Association, held at Portsmouth on the 18th. Both of these large and representative waterway bodies are component parts of the national congress, and are assisting materially to make it a great success.

"The organization now numbers among its members commercial and manufacturing associations in various cities distributed throughout 37 States, and we hope before another year shall have passed to have united the whole country in this most worthy cause. I sincerely trust that your city, as well as every other city in the East, will feel a great interest in this matter and appreciate the importance of having as large a delegation as possible come to Washington on December 6 and 7 next."

The Value of a Product.

The true test of the value of a product is in its accessibility to a market at any season of the year, and at a carrying rate that is not in any sense exorbitant nor dependent on agreements or combines between carriers, but reasonable to the degree that will allow the carrier his just profit and which will not compel the shipper to demand a price burdensome, not alone on the consumer, but detrimental to his business, no matter what it may be.

The benefits conferred on trade and commerce by the great railways of the world are not to be minimized. Not only have they had their day, but they will continue to have it. Between the railway and the river there may be competition, but there is no real antagonism; but even though there were antagonism between the two methods of transportation, due regard must be had and paid to both when the trade and commerce of the country have reached a volume that imperatively demands increased facilities for transportation, if the march in advance of all nations is to be continued, the shipper relieved from congestions from which there seems at times to be no deliverance, and if the consumer is not to be taxed beyond his strength to bear.

The improved inland waterway and the improved harbor offer the one true solution of the problem of transportation not alone in accessibility to market, but to relief from distressing and continued congestions and car shortages, from which all branches of trade and commerce are now suffering intensely, but in the regulation of charges for transportation, bringing them down to a reasonable, fair and just basis, and automatically regulating freight tariffs. Not so much to meet the demand of trade and commerce for the improvement of the rivers and harbors of the United States, but rather because the demand had grown to imperative degree, the National Rivers and Harbors Congress was organized, embracing in its membership associations, organizations and individuals from every State in the Union, and pledged to but one object—the placing of the rivers and harbors bill upon a plane with other annual governmental appropriations, making it reg-

ular and in amount commensurate with its great importance to the commercial, industrial, agricultural, mining and general economic welfare of the United States.

The Third Annual Congress will convene in Washington on Thursday and Friday, December 6 and 7, at the Arlington Hotel. No section of the United States should be unrepresented, for the importance of the work cannot be overestimated.

BUILDING AT LAKE LAND.

Evidences of Prosperity on the Florida Peninsula.

Editor Manufacturers' Record:

If you will draw a line across the State of Florida from Jacksonville to Cedar Keys that portion of the peninsula south of that line comprehends one of the richest agricultural and mining countries on this continent. The orange crop, which was never better in quantity and will be about 3,000,000 boxes of oranges and grape fruit, is now going rapidly to market, and very many splendid pineapples and such garden stuff as cucumbers, tomatoes, beans and Irish potatoes are being sent in car-load lots from the State. Strawberries from this section of the State will begin moving in quantities during the next 10 days. Phosphate outputs and shipments are growing rapidly in quantity and quality by modern mining methods and appliances, and is being improved, too, and in every village, hamlet and city throughout the State we find evidences of building improvement.

Many substantial business houses and residences are now under construction here in Lakeland. The Methodists are just building a church edifice of ornamental stone 70x90 feet to cost \$15,000, and it will be most modern in its every apartment. The ornamental glass and church fixtures people ought to get some good business here. Rev. Mr. Cason is in charge of the work.

Capt. Jack Adams, famous as a real-estate man and in horse circles, is building an ornamental stone business block 100x125 feet, two stories, with plate-glass front, to cost \$50,000. The walls for the first story are nearly up, and it is safe to say that for architectural beauty and finish, with every modern convenience and appliance for comfort, this will be one of the handsomest buildings in the South.

Dr. C. G. Memminger is also just finishing a residence costing \$12,000 that would be an ornament to any city.

The two banks here, heretofore known as the State Bank of Lakeland and the Citizens' Bank, have recently been practically merged, as Mr. John Trice of the Citizens' Bank & Trust Co. of Tampa, who has for some time been president of the Citizens' Bank of Lakeland, was last week elected president of the State Bank of Lakeland. It is said that the capital of the two banks, which has been \$40,000, will be increased to \$100,000 in the immediate future, and that Mr. E. O. Flood, who has long and successfully been cashier of the State Bank, will manage the united banks. The W. S. Witham system of banks of Georgia, which is already operating banks at a dozen cities in this State, will during the next 90 days most probably establish a national bank at this point with a capital of \$100,000.

The Atlantic Coast Line Railroad is now engaged in building about eight miles of trackage for other yards here, and is building a roundhouse as well, and it is creditably rumored that it will move the shops from Sanford and High Springs to Lakeland in the near future.

There will also be four other new phosphate plants built in this immediate vicinity within the next few months.

With the present good prices for fruits and vegetables and for phosphate, and the large number of actual settlers coming into

the peninsula by every train and kind of private conveyance, this country is on a financial move that is solid.

ALBERTUS VOGT.

Lakeland, Fla.

VAST MARBLE QUARRIES.

Unique Phases of the Industry at Tate, Ga.

[Special Cor. Manufacturers' Record.]
Tate, Ga., November 2.

It is said that the largest marble quarries in the South are located at this place, and it does not take the visitor long to be convinced of this fact after he has taken a trip over the property. Tate is situated on the Louisville & Nashville Railroad, about 62 miles from Atlanta, and only a short distance from Knoxville. These quarries are operated by the Georgia Marble Co., whose officers are Samuel Tate, president; L. E. Tate, vice-president; R. W. Boone, secretary, and S. H. Wright, treasurer. It owns seven miles of trackage from the station to its property, and operates 25 cars and three locomotives, all owned by it, over this private line, which connects the quarries with the main line of the Louisville & Nashville Railroad. The property is located in a valley which is a veritable bed of fine marble, and it is only necessary to go from 3 feet to 15 feet below the surface to find the best grade. The supply is seemingly inexhaustible, because work has been carried on for 21 years and there is no appreciable decline in quality or quantity. Everywhere you look or walk you will observe marble in immense quantities.

To the inexperienced the process of mining operations is very interesting. At a depth of from 120 to 175 feet are the channelling machines, which, with a Gadder drill, cause the marble to be broken out as it were with wedges. These blocks are uniform in size and average about 125 cubic feet to the block, weighing about 25,000 pounds each. With the aid of a derrick these massive blocks are lifted to the top of the quarry and loaded on cars for shipment.

This company now operates four quarries, from which it gets the following brands—Creole, Cherokee, Etowah and Kennesaw, and is opening up other parts to these already large quarries. The Cherokee light quarry is 100 feet deep, Creole No. 1 is 120 feet, Creole No. 2 175 feet and Cherokee A 80 feet deep. The Kennesaw quarry is situated about two and one-half miles from the main plant, and it is here where marble is gotten for buildings and monumental purposes. Probably the most beautiful of all the decorative marbles quarried in Georgia is the dark Creole found at this place. The marvelous witchery of design and its beautiful tracings have excited the admiration of all who have ever seen it. It is far more beautiful than mahogany, the only thing that it can be compared with. Its weirdness of design has caused it to be admired wherever it is used. A remarkable example of it can be found on the fifteenth floor of the Candler Building, Atlanta, Ga. The contract for furnishing this building was executed by the Blue Ridge Marble Co. of Nelson, Ga. Another beautiful example of the same marble can be found in the Kanawha Hotel at Charleston, W. Va. This dark Creole marble is having a wonderful run, and the Georgia Marble Co. has been pushed to its utmost to supply the large and increasing demand. Architects and builders all over the country have been attracted to it, and several very large buildings which are to be erected will use this marble for interior decorative purposes.

Two hundred and fifty hands are employed here, and 175 cars on an average per month are shipped, and still the company finds it difficult to fill all orders. The

plant of the company is a model one, well equipped with the most improved machinery, including its own machine shop and electric plant, and having a large force of skilled workmen. It has received many large orders from all parts of the country for marble for outside and interior purposes. It is now getting out a large order for an office building in Montreal from the gray Cherokee quarry, shipping light Cherokee to Winnipeg and furnishing out of the Kennesaw quarry marble for the Girard Trust Building of Philadelphia and the new Metropolitan Bank. It filled contracts for the Montgomery-Ward Building, Chicago; new terminal station, Atlanta, and has also received contracts for the new terminal station at Birmingham. The interior of the Candler Building came from the light Cherokee quarry, where are procured gray and light from the same quarry. This beautiful design in marble is one of the sights of Atlanta, and is the admiration of every visitor to this city. In the interior work, especially where the wainscoting, fluted columns and highly-decorated caps and pedestals are highly polished, does the full richness of the material which comes from the Nelson quarries show up to the greatest advantage.

Probably the most beautiful and expensive marble work to be found in this country is in the main vestibules of the Candler Building, which are finished with paneled ceilings of marble in artistic designs, showing a richness which is at once striking and satisfying. These grades of marble are not affected by heat, as was thoroughly demonstrated in the two great fires in Jacksonville, Fla., and Baltimore, where they stood the severe test better than granite or any other material. A careful investigation showed an uninjured surface and interior. It is claimed that the tests which have been made show a greater resistance to the effect of heat than any known stone.

To show how inexhaustible is the supply of marble in this section, it is a usual thing to see many of the outside chimneys of some of the frame houses en route built of marble, while the railroad owned by the Georgia Marble Co. running from Tate to its property is ballasted with marble. The writer had a most novel experience riding over this vast estate in a locomotive owned by the company. Through the courtesy of Mr. H. L. Litchfield all points of interest were shown. I. S. FIELD.

Kentucky-Tennessee Oil Fields.

[Special Cor. Manufacturers' Record.]
Barbourville, Ky., November 5.

Although rather late in the season for the entrance of new capital, two or three new development concerns have lately been organized to operate in Kentucky's oil and gas fields.

A new territory will be entered in Western Kentucky by the Green River Oil & Development Co. of Morganfield, Ky. This concern, which has just been organized, will drill in sections of Butler county, which has already shown favorable indications of oil and gas. The company was incorporated last week with a capital stock of \$50,000, and drilling will start at once. In Knox county W. C. Kennedy & Co. of Bradford, Pa., have purchased several hundred acres of gas territory near Barbourville, and will install a natural-gas system in this city. One well was already drilled on the property purchased, and other holes will be sunk. The system is now being put in. A test of the well already drilled shows a volume of 700,000 cubic feet and a pressure of 270 pounds, sufficient force to carry the gas 70 miles without artificial pressure. The W. C. Kennedy concern has interests valued at over \$1,000,000. In upper Kentucky the Central Kentucky Natural Gas Co. will extend operations. This company has headquarters at Lexington. David Main of Barbourville has

acquired the holdings of the National Oil & Development Co. of Chicago, and will drill new wells in Knox county.

Developments in the Kentucky-Tennessee field, after the dull season of the past two months, are assuming greater proportions. A number of new rigs have been put to work, following the opening of new pools, and better results are expected. One of the most important new openings was in Wolfe county, this State, a test well showing the famous green oil in large quantities. The strike, which has created great interest in upper Kentucky, was made by the Mountain Valley Oil Co. of Lexington. It is the first green-oil strike yet made in this State.

Results from October operations in Kentucky-Tennessee divisions were not up to those of the preceding months. Thirty-six wells were completed, including five dry holes. Most of the work was accomplished the latter part of the month. The production of oil slightly exceeded the 100,000-barrel mark.

The market for Kentucky-Tennessee oil is good, but prevailing prices are not satisfactory. The two grades of oil produced command 85 and 55 cents, respectively. These prices have prevailed for six months. At this season prices usually advance, but just now the indications are for a decline, due to the great overproduction of oil throughout the country. The Standard Oil Co. controls all but a small part of the Kentucky-Tennessee production. In two divisions of Kentucky an independent concern, the Indian Refining Co. of Georgetown, competes in the crude-oil market, paying 88 cents per barrel for the better-grade oil. This concern is conducting a flourishing business. W. S. HUDSON.

CHARLESTON IMPROVEMENTS.

Municipal Activity for Civic Betterment.

[Special Cor. Manufacturers' Record.]
Charleston, W. Va., November 5.

Indicating the tendency of Charleston in the direction of municipal improvements, the City Council has recently passed an ordinance calling for a special election to be held November 19, 1906, on the proposition to issue \$250,000 4½ per cent. 34-year bonds. The ordinance provides that the bonds shall be sold at not less than par. \$100,000 of the issue shall be used in refunding floating indebtedness, \$25,000 for the construction of a bridge across Elk river and \$125,000 for the construction of three additional main sewers within the city.

The City Council has also appointed a special committee to select a site for a much needed new City Hall. Just how soon work can be commenced on this improvement 's, however, somewhat problematical, as a statute enacted at the last session of the Legislature restricts the bonded indebtedness of the cities of the State to 2½ per cent. of the assessed valuation. The assessment for 1906 shows the total valuation of taxable property in Charleston to be \$20,400,000 in round numbers. This would restrict the bonded indebtedness to about \$510,000. There is a present bonded indebtedness of about \$175,000, so that at the present time there is difficulty in figuring out how the city can legally undertake the construction of the City Hall. It appears, however, from an examination of the accounts of the city that there are a number of credits to be made in the shape of claims and cash on hand and in sinking fund, so that, including the floating indebtedness and the outstanding accounts, the total net indebtedness of the city is given as \$195,000. This would leave amount available within the statutory limits for the proposed bond issue \$315,000 in round numbers. There is a sentiment in favor of a new statute permitting a greater indebtedness to be in-

curred, and it seems likely that a move in that direction will be made when the Legislature meets in January. Should the limit be raised to 5 per cent. of the assessed valuation it would be possible then to arrange for an issue of bonds sufficient to provide for the construction of the new City Hall and other desired improvements. The present valuation of property will stand until 1909, and after that year there will be a reassessment annually.

There is a very considerable public sentiment in Charleston favorable toward such a bonded indebtedness as would enable the city to undertake a number of improvements which cannot be carried out with a bonded indebtedness limited to \$500,000. This is a matter which is being discussed pro and con by property-owners and officials of the city at the present time, but definite action on anything except the present bond issue, cannot be taken for some months to come.

As it will be of decided advantage to the city to issue the \$250,000 at 4½ per cent. bonds, it is altogether likely that the proposition will be favorably voted on. Of the floating indebtedness, a very large part of it is in the shape of interest-bearing certificates of indebtedness, which bear 6 per cent. interest.

The amount proposed to be used in the construction of a bridge across Elk river is only half the sum that the bridge will cost, the other half being promised by the street-car company. This will be a very important improvement, as it will replace an old bridge of antiquated construction and wholly inadequate for the traffic of the present day. For an expenditure of \$25,000 the city would get the use of a \$50,000 bridge. This would be the second new bridge across Elk river, and would provide needed transportation facilities between Charleston and the rapidly-developing section of West Charleston. The expenditure of \$125,000 in the construction of three additional main sewers is the beginning of a proposed expenditure of an ultimate \$500,000 for sewer improvements. Within the past 10 or 15 years practically all of the present modern improvements in Charleston have been put in. There are now about 20 miles of paved streets in the city, with contract let for two miles more. It is expected that work along this line will be continued until practically all of the streets in the city have been paved. In this work two-thirds of the expense is paid by the abutting property-owners.

During the past year \$35,000 has been expended in the further equipment of the city fire department, and the force of firemen has been increased from 8 to 20 men. A new fire station has been opened on the West Side, giving protection to two entire wards hitherto not adequately supplied. With the improvements to the water-works system now being put in, Charleston's fire protection will be of a very satisfactory sort. ALBERT PHENIS.

ADDITIONAL DEVELOPMENT.

Plans of the Southern Power Co. of Charlotte.

Reference has frequently been made by the MANUFACTURERS' RECORD to the work of the Southern Power Co. of Charlotte, N. C., in developing water-power properties, a total of approximately 150,000 horse-power to be eventually transmitted in North and South Carolina. During the past week the Southern Power Co. announced the completion of plans to begin development work soon at the Ninety-Nine Islands on the Broad river, six miles south of Blacksburg, S. C., and at Rocky Creek, on the Catawba river, two miles below Great Falls station. It is estimated that 16,000 horse-power will be obtained at Ninety-Nine Islands and 30,000 horse-power at Rocky Creek. The cost of these

developments is reported as about \$3,000,000, and the plants are expected to be completed by January 1, 1908. Plans and specifications have been drawn and some of the machinery contracts will be awarded this month. The Southern Power Co. increased its capital stock last month from \$7,500,000 to \$10,000,000.

INDUSTRIES AT KNOXVILLE.

Wonderful Advantages for Diversified Interests.

[Special Cor. Manufacturers' Record.]
Knoxville, Tenn., November 1.

Knoxville's annual manufacturing output aggregates about \$20,000,000, the number of employes is 15,000 and the capital invested is about \$12,000,000. The value of the hardwood manufacturing output exceeds all others, iron manufacturing, textile, clothing and food following in the order given. In five years the number of manufacturing establishments has increased 48 per cent. The capital stock increased 75.7 per cent., the number of wage-earners increased 69.3 per cent., wages 97.1 per cent. and value of products 100.5 per cent. Near the coal fields, with the advantage of cheap steam fuel; in the midst of a great undeveloped hardwood section of the country, surrounded by iron mines, marble quarries, clays and other mineral resources, admirably situated for textile and clothing manufacturing, supported by large jobbing business, served by the best railroads, Knoxville holds out extraordinary advantages to diversified interests, such as proximity to raw material, cheap steam fuel, good labor at low cost, low cost of living, excellent railroad facilities, splendid climate, free water supply from numerous streams flowing through the city, and last, but not least, special educational advantages.

The coal fields within a radius of 60 miles of Knoxville embrace about 100,000 acres, including the Jellico and Coal Creek districts, from which about 1,000,000 tons are mined annually. Probably no section in America produces more or a greater variety of fine brick clay. It is estimated that there are 1,000,000 tons of good fire-clay already mined and thrown out among the debris at the coal regions. These clays usually run from 55 to 65 per cent. silica and from 20 to 24 per cent. aluminum. Cement rock is equally abundant. Taking coal, iron, coke, fire-clay, cement rock, limestone and timber, probably no equal stretch of territory anywhere has greater quantities and varieties for general industries. When to these are added transportation facilities and water-power, everything is present for the most prosperous development.

Plans are now under way to make use of the great water-power in the region of Knoxville, the first enterprise promising to deliver at Knoxville about 30,000 horse-power. Ten lines of railroad are operated from here, belonging to the Southern and the Louisville & Nashville, and present prospects are that within 18 months the Seaboard Air Line and possibly another railroad will have built into Knoxville.

The Board of Trade is Knoxville's commercial organization, composed of her leading financial and business citizens with a membership of over 500, who have determined to advance the interests of their city. They invite investigation, and the secretary of the Board of Trade, Mr. Jas. A. Hensley, will be glad to furnish any information. I. S. FIELD.

The Birmingham District.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., November 5.

The latest quotation heard on spot iron is \$22.50 per ton No. 2. Efforts were made during the past week to get as much as 500 tons of No. 2 soft or No. 2 foundry iron, delivery within 30 days, offering to

pay for same \$21.50, but less than 150 tons were obtained. Prices for iron to be delivered during the first half of the coming year have been advancing also, No. 2 foundry for the first quarter of 1907 commanding from \$19 to \$20 per ton, and for the second quarter from \$17.50 to \$18.50 per ton. There are some deliveries being made on orders which were taken in several months since and at low prices. The transportation facilities in Alabama show very little if any improvement. As to handling the raw material for the furnaces, transportation is no better, and loud complaints are still being made by those interested. The iron output shows no improvement, though announcement is made that in the near future two or three furnaces will be ready for operation and will be started up.

Railroad officials say that they expect to give every relief that could be asked for in a short while. The locomotive power scarcity will be corrected in the near future. One of the larger railroad companies sent some of their locomotives to another division to clear up the accumulation brought about by storms during last month. These locomotives will be brought back to this district. The strike of machinists in the Southern Railway shops at this point is off, and it is expected that the work about locomotives which has been retarding train movements considerably will soon be caught up with. Other lines are expecting to increase their car service, too, in order to provide as much relief in industrial circles as possible and at the earliest possible moment.

Considerable progress has been made on the excavations for the foundations for the big steel plant of the Tennessee Coal, Iron & Railroad Co. at Ensley. John A. Topping, chairman of the executive committee of the company, was in Birmingham for a short while last week, and he is quoted as saying that as soon as the new steel plant was up and in operation extensive improvements would be made on the present plant. The furnaces of the company at Ensley are being rebuilt one by one, and the properties being put in first-class condition.

DRAWN TO FORT WORTH.

That City's Importance in Railroad-Ing, Industry and Commerce.

[Special Cor. Manufacturers' Record.]
Fort Worth, Texas, October 31.

From a commercial standpoint the location of Fort Worth is unique and commanding. It is the entrepot to a territory embracing nearly 100,000 square miles, or about one-third of the domain of the imperial domain of Texas.

Through this gateway must pass the products of this vast territory, and through it must pass the manufactured product on its way to the consumer.

This territory is without a rival in the fertility of its soil and variety of its productions. Here can be grown to perfection every product known to the temperate zone. The climate is mild and equable. Its altitude tempers the heat of summer incident to this latitude, and makes it a delightful and desirable place of residence.

Railway managers, the most far-seeing and astute business men, early recognized the advantages incident to the location of Fort Worth, and to this point was directed trunk lines of railways, until now 12 systems converge at this city, radiating in 17 different directions and extending across the State and adjoining States to the commercial marts of the South and West. This has drawn hither the large and conspicuous industrial enterprises.

Those captains of industry, Armour & Co. and Swift & Co., have established here most modern and well-equipped packing-houses and commodious stockyards. As an evidence of the soundness of their judgment the business which they direct has

shown a great percentage of growth each year, and they now make the unchallenged prediction that in a few years Fort Worth will be the second city in the United States in the volume of its cattle business and packing-house products.

Next in importance to the cattle and packing-house products is the grain business, and in this, too, men of business acumen and discernment selected Fort Worth as the headquarters of the Texas millers and Texas grain dealers. Here are located eight grain elevators (and these are frequently inadequate to the demands of the trade) and three large flouring mills with an aggregate capacity of 5000 barrels of flour per day.

As the territory north and northwest, so peculiarly adapted to the production of the cereals, becomes settled, the volume of the grain and flour business will increase until Fort Worth is expected to become to the Southwest what Minneapolis is to the Northwest.

With its railway facilities the acknowledged center of the cattle, grain and flour business, it is not surprising that Fort Worth should have grown with rapidity and in a substantial manner. It is not surprising that men of capital and skill should have selected this city as a place of residence and business, and that wealth and population should have grown with such rapidity.

Bank clearings, those safe and undisputed indices of business, show a steady and satisfactory increase day by day throughout the year.

Every branch of mercantile business is well represented except the wholesale houses. It is a large market for groceries west of the Mississippi river, and there is a fine opening for wholesale houses in other lines.

Industrial enterprises of nearly every character are needed and would be profitable. The raw material for many factories can be had with convenience, and the market for the manufactured product will be found at the very door of the factory.

As a place of residence Fort Worth cannot be excelled. Situated nearly 700 feet above sea-level, it is swept by the cool, refreshing Gulf breezes in summer, which alleviate to a large extent the summer heat incident to this latitude.

Its people are progressive and public-spirited, cultivated and refined. The educational facilities are excellent, and every religious denomination is represented by one or more elegant and commodious church edifices.

WORKING FOR RALEIGH.

Its Chamber of Commerce Seeking to Attract Industries.

[Special Cor. Manufacturers' Record.]

Raleigh, N. C., November 3.

Raleigh is a prosperous city of about 30,000 inhabitants, full of vigor and enterprise, as expressed in public works through its Chamber of Commerce, which is an association composed of the representative men in its manufacturing and commercial circles. Most of the State buildings and institutions are located here, including, beside the classic Capitol building, a superb State Museum and the State Library. The city has nearly 50 miles of broad, well-paved streets, and a fine water and sewerage system. The manufacturing industries of the city embrace a fine modern equipped machine shop of the Raleigh Iron Works, also the shops of Mr. J. H. Gill, large hosiery, yarn and gingham mills, phosphate works, cottonseed-oil mill, tobacco factory, two sawmills, furniture factory and several others. Raleigh is one of the leading educational centers of the State, having several colleges and a fine system of modern public schools. The railroad facilities embrace four roads, the principal ones being

the Southern and the Seaboard Air Line, which give connections in all directions. Two new roads are now being constructed, one the Raleigh & Southport, to extend into South Carolina and to reach deep water both at Charleston and Southport; the other, the Raleigh & Pamlico Sound, a part of the Norfolk & Southern Railway system, of which 200 miles are now under construction. The Chamber of Commerce is making an effort to secure large and small manufactures, and is offering inducements for them to locate here. To those who are looking for a new location it would be well to correspond with Mr. Fred A. Olds, secretary of the Chamber of Commerce, who will furnish all desired information.

I. S. FIELD.

BALTIMORE SEWERAGE.

Bids for Portions of Main Work Opened.

Estimates submitted by a number of contractors for the construction of sections one and two of the main outfall sewer of Baltimore's new sewerage system were opened by the municipal Board of Awards on November 7, and the lowest bid was made by M. A. Talbott Company, American Building, Baltimore, who will probably receive the contract. This work covers about two miles of the main outfall sewer, through which the sewage will pass, after being received from the lateral branch sewers, to the disposal plant to be located on Back river. The sections will be constructed of concrete in the shape of a horseshoe, and will have an average diameter of 12 feet. The approximate cost of this part of the work will be about \$300,000.

The Board of Awards will also receive bids until November 28 for furnishing the mechanical equipment of the pumping station. This includes three 27,500-gallon capacity plunger pumps and other necessary equipment to give sufficient power to lift the sewage to an elevation of 62 feet, although the total lift, including the friction head, will be 72 feet. This will be one of the largest pumping plants in the world, and the cost of the building and equipment will be about \$500,000.

The awarding of these contracts will be the last during the present year, as the Sewerage Commission only had available about \$800,000 for its work in 1906. It was not expected when the work was undertaken 10 months ago, when the first men were placed in the field to make surveys, etc., that any large contracts would be awarded so soon, but the indefatigable efforts of Mr. Calvin W. Hendrick, the chief engineer, and his force in overcoming the many obstacles and working out the many details made possible the great progress.

For the year of 1907 the Commission will have at its disposal for the sewerage work about \$3,000,000.

Model Coal Mining.

The details of the system of mining coal at the mines of the Pocahontas Collieries Co. of Virginia is the subject of an interesting article in a recent issue of the *Engineering and Mining Journal* written by William Leckie, general superintendent of the company, and F. W. Parsons.

The company's largest mines are at Pocahontas, a town of about 4000 inhabitants on the Norfolk & Western Railway, where also it has its own machine shops, car shops, power station, water-works, electric-light plant, supply stores, commissary, cold-storage plant and about 400 comfortable dwellings for its employees.

In addition to the four mines now being operated at Pocahontas, the company is now busily engaged in opening up its new plant at Boissevain, about three miles west of Pocahontas, while two other plants will

later be opened three miles west of Boissevain, and each of these operations, it is expected, will produce from 3000 to 4000 tons of coal a day.

These new mines will be reached by a new railroad, now in course of construction from Pocahontas westward, and it will probably be used as the main line of the Norfolk & Western Railway when the resources of the country along the line are sufficient to warrant the change.

At the Boissevain mines the company will install a system for working the plant to which it has devoted considerable thought in order to overcome or lessen some of the dangers and inconveniences usually encountered not only in opening new mines, but in the consequent working of them. The system adopted is known as the panel system, which was also used at the Baby and West mines of the company at Pocahontas, and separate entries will be made according to the angle of the dip and the haulage will be done by third-rail motors. To economize the working of the mine it will be laid out in rectangular shape, having haulways paralleling each other about every 1500 feet each way.

The mine will be drained by electric pumps and the main pumping station will be located at a point where the seam is lowest. To this point, where it will be thrown out on the surface through one or more bore holes, all the water will be carried in the mine by natural drainage except from the west, where it will have to be pumped. To safeguard the mines from gas every panel will have its own regulator and will receive its separate split of fresh air, and in no case will used air be passed into a haulage road. The system of ventilation will be accomplished by a fan of ample capacity, and to insure its operation in a safe manner overcasts will be used instead of doors, the overcasts being not only more economical, but by splitting greatly reduce the power required at the fan.

By a system of automatic electric-light signals installed in the main haulway, trips will be allowed to maintain their full speed without the danger of running into each other.

The simplicity of the system and the safeguards adopted will, it is believed, render it an ideal one for the operation of the mine.

To Drain Mississippi Land.

THE MANUFACTURERS' RECORD has received the following information regarding the contemplated drainage of the Black bayou basin near Greenville, Miss.: "The irrigation and drainage investigations department of the office of experiment stations, Department of Agriculture, has, at the request of prominent landowners of that valley, begun a survey of the Black bayou to determine whether this channel may not be so improved as to furnish adequate drainage to a tract of valuable land lying between the Mississippi river on the west and Deer creek on the east. The valley which the Black bayou drains is approximately eight or nine miles wide and 35 miles long, comprising land of great fertility, the agricultural production of which is greatly lessened by inadequate drainage. The bayou into which all drainage water flows is crooked and obstructed by growing timber and driftwood. The purpose of the survey is to ascertain how this channel may be efficiently improved and its cost.

"Mr. L. L. Hidinger is in charge of the field survey, and expects to file his report in December, when it will be taken up by this office and recommendations prepared for the use of the commissioners of Washington county, who are charged with the consideration of this drainage project in Washington county by a special act of the Legislature passed in 1906." This statement is furnished by Elwood Mead, chief

of irrigation and drainage investigations of the national Department of Agriculture.

MODERN STREET-CAR BARN.

Comprehensive Improvements on the Baltimore System.

Modern car barns are as essential to the systematic and economical operation of electric railways as any of the other features attached to its successful management. To facilitate the operation of the entire system and to be successful in their purpose they should be located at advantageous points, be built of fireproof materials to protect their contents from destruction by fire and the interior trackage should be so arranged as to permit ready ingress and egress at all times and with the least possible confusion.

These essential features of modern car barns are illustrated in the work now being carried out by the United Railways & Electric Co. of Baltimore. This company controls and operates the entire system of railways in the city, and the many improvements which have been made to its lines during the last year and those which it has planned are placing it on a high plane of general efficiency, and when all of its improvement plans are carried out it will equal, if not surpass, any of the high-grade electric railway systems in the country.

The company's plans for the reconstruction of its car-barn system embrace the erection of seven or eight of these structures at advantageous points throughout the city, one being at Edmondson avenue and Calverton road, at the western end; one on Belvedere avenue opposite Electric Park, in the northwestern suburbs; one on York road near Arlington avenue, at the northern end; one at Gay street and North avenue, at the northeastern end; one on Lombard street, Highlandtown, at the southeastern end; one at Towson, five miles from the northern end of the city, and one at Fulton and Druid Hill avenues, at the terminus of the Druid Hill Park lines.

The location of these barns, together with those which it already has in the southern and southwestern sections, completely cover the entire city, and will greatly facilitate the operation of its system.

Reinforced concrete will be used entirely for the construction of all of these barns with the exception of the exterior walls of one or two, which will be of brick. They will be thoroughly fireproof in every respect, and will be equipped with automatic sprinkler systems, metal frames and sashes and copper skylights glazed with wireglass, fire doors and steel rolling doors.

The first of these structures to be undertaken was the one at Edmondson avenue and Calverton road, and the necessary plans and specifications were prepared by Simonson & Pietsch, architects, of Baltimore, with Wilbur H. Peebles of Baltimore as consulting engineer, and the contract for its construction was awarded to J. Henry Miller, Baltimore, and it will cost about \$120,000. This barn, which will be one story high, 226.5x293 feet, will be constructed throughout of reinforced concrete, this part of the work being done under subcontract by the Armored Concrete Construction Co. of Baltimore. It will be divided into three separate compartments, each compartment having eight tracks, with cleaning pits under each track. The automatic sprinkler system, consisting of one 40,000-gallon capacity white-cedar tank and necessary equipment, will be installed by the General Fire Extinguisher Co. of Philadelphia, Pa. It will be equipped throughout with metal frames and sashes glazed with wireglass and furnished by the C. D. Pruden Company of Baltimore. The roof will be covered with slag, put on by the Warren-Ehret Company of

Baltimore and Philadelphia. Several rooms will be set apart for the convenience of the employees, and each employee will have a separate metal locker, of which there will be about 200, these being furnished by Merritt & Co. of Philadelphia. Other subcontracts covering the installation of equipment include mill work by Tinley Bros. Company, Baltimore; iron work by Dietrich Bros., Baltimore; plumbing by Peter Kries & Son, Baltimore; heating system by Charles King & Co. of Baltimore; electric wiring and fixtures by the C. Y. Davidson Company of Baltimore; skylights and sheet-metal work by Vaile & Young of Baltimore; steel rolling doors by James S. Wilson, Norfolk, Va., and hardware by the Stewart-Crook Hardware Co. of Baltimore.

The second structure, which will be located on Belvedere avenue opposite Electric Park, was also designed by Simonson & Pietsch, architects, with Wilbur H. Peeples as consulting engineer, and the contract for its construction was awarded to the Charles McCaul Company of Philadelphia, Pa., and Baltimore, and will cost about \$125,000. This building will be one story high, 213.6x314.4 feet. Reinforced concrete of the skeleton type will be used for interior and exterior columns, girders, floor beams and roof and floor slabs. The exterior walls will be curtain walls, supported on girders spanning from column to column, and will be constructed of brick, the front wall having a granite base and trimmed with ornamental terra-cotta.

It will be constructed in four sections, each section having four tracks, and each track will be equipped with a cleaning pit and it will be paved throughout with slag blocks.

The plans provide for four steel rolling doors, a number of gravity sliding fire doors, 28 copper skylights, metal frames and sashes glazed with wireglass throughout, 210 metal lockers, sanitary plumbing, steam-heating system and electric wiring and fixtures. A complete automatic sprinkler system for fire protection will also be installed and will include two 40,000-gallon capacity white-cedar tanks, with electrically-driven air compressor and 450-gallon capacity tank heater.

As the contract for the construction of this building has just been awarded, none of the subcontracts have as yet been placed.

Estimates on construction are now being taken from contractors for the third of these barns, which will be located on York road near Arlington avenue. Baldwin & Pennington, architects, Baltimore, prepared the plans and specifications, with Newton & Painter of Baltimore as consulting engineers. This structure will be one story high, 131.8x405 feet. Estimates are being taken both for reinforced concrete construction throughout and for the skeleton type of reinforced concrete, including all columns, beams, girders and roof and floor slabs, with curtain walls of brick, and the different methods of reinforced concrete construction will be considered for the work which are recognized by the engineering profession as having passed the experimental stage.

The equipment throughout this building will be similar to that of the others with the exception of the sprinkler system tank, which will be of steel and have a capacity of 50,000 gallons.

The plans and specifications covering the construction of the other car barns have not as yet been completed, but as soon as they are estimates on construction will be taken and contracts awarded.

The Jonesboro (Ark.) Board of Trade has been organized with Messrs. Joseph Mason, president; E. C. Stick, vice-president; H. Watson, treasurer; C. H. Gregor, secretary; T. J. Ellis, R. H. Meyer and G. W. Culberhouse, executive committee.

CRUSHED STONE AND BITUMEN.

Their Use in Constructing Street Pavements in Cities.

Among the papers read before the recent meeting of the American Society of Municipal Improvements at Birmingham, Ala., was one by J. W. Howard, C. E., E. M., of New York, on bituminous pavements containing crushed stone. Mr. Howard stated that it was not his intention to advocate any one kind of pavement, such as granite blocks, asphalt, bitulithic or other kind, nor to make any comparisons between them, but would confine his address to a discussion of bituminous pavement of cities and the way to secure in the finished product the best and most durable that can be obtained, without dwelling upon the many local conditions which exist in the various localities and which could only be solved by those in the direct charge of the work after giving due consideration to such points as climate, quality and quantity of traffic, width and grades of streets and other essential points. He referred to the various foundations for bituminous pavements, which, he stated, needed special construction and which should be composed of either a bituminous base or a hydraulic cement concrete base, according to the condition of the subsoil, but whichever used must fully sustain the very heavy steam roller needed to properly compress bituminous pavements of crushed stone. If the subsoil is well drained and of a firm character, as when composed of stones, gravel or loam, mixed by nature or otherwise, then a bituminous base is of an advantage under bituminous pavements, but if the subsoil is yielding or poorly drained a foundation of hydraulic cement concrete should be used, although in either case it is necessary that the subsoil, as for all pavements, must be properly graded, compacted and securely retained at the sides and curbs and otherwise. In describing the laying of the foundations he stated that a bituminous base should be composed of suitable coarse crushed stone, which should be compressed with a steam roller of at least 10 tons and the surface is then coated with a suitable bituminous cement applied hot and a little of the surplus allowed to run a short distance into the upper portions of the crushed stone, and the base will then adhere firmly to the wearing or top surface when it is laid and prevent displacement or rolling of the top surface into depressions or ridges. In laying a cement-concrete base care should be taken to make the surface rough to prevent the top or wearing surface from slipping, this being best accomplished by making the cement slightly rich in mortar and tamping it until a film of mortar comes to the surface, then clean broken stone should be scattered over the surface and tamped one-half their depth into the base, thus giving a rough, serrated surface, to which the top or wearing surface will firmly adhere. To obtain a hydraulic cement-concrete base of this character, he added that it is absolutely essential that the concrete should contain sufficient mortar to fill all of the voids between the stones, and that thorough tamping should be insisted upon, evidence of sufficient tamping being shown in a slight excess of mortar being forced to the surface of the concrete. Other foundations which are successfully used under bituminous pavements with economy after slight preparation consist of old pavements, such as asphalt, asphalt blocks, brick, stone, wooden blocks or others built over a firm foundation of concrete, crushed stone or equivalent.

Mr. Howard argued that a bituminous crushed-stone pavement, to be successful, by whatever process produced must meet the following requirements: It must have maximum density with minimum voids;

the stone used must be durable, to resist wear; the crushed stone so proportioned in a descending scale as to have each successive smaller size fill the voids between the larger sizes down to the finest powder and have these stones mutually support each other; a cement must be used which is waterproof, adhesive and ductile not only to cement the mineral aggregate together, but also to fill any possibly tiny voids, this being best accomplished by prepreparing the crushed stone into several sizes and storing them into several bins, then taking such proportions of each size from each bin as have been found by technical tests to give a mixture of the greatest possible density of the kind of stone used, or a density as near as possible to that of the original stone from which the crushed stone was made. The result is easily demonstrated by comparing the specific gravity of the stone before it is crushed with the final aggregate of crushed stone. It is not possible to obtain a maximum density by using crushed stone direct from a crusher, nor by filling its voids with some small sizes that are not graded, nor by filling the voids with a mixture of sand and stone dust.

Concerning the requirements of bituminous cements, without going into technical details, Mr. Howard suggested that it must be uniform as shown by penetration, flow, evaporation and other tests; it must be soft and viscous as possible and still have adhesion and strength sufficient to bind the mineral aggregate together at all weather temperatures and when subjected to the shock of wheels and hoofs; it must not be volatile at the temperature used in mixing, and it must resist water action and be ductile and flexible, as well as remain adhesive at the extremes of winter and summer.

North Carolina Stones.

The resources of North Carolina as to building and ornamental stones are elaborately set forth in Bulletin No. 2, recently issued by the North Carolina Geological Survey, Joseph Hyde Pratt, State Geologist. This volume was prepared by Prof. Thomas L. Watson of the Virginia Polytechnic Institute, Blacksburg, Va., and Mr. Francis B. Laney of the North Carolina Geological Survey, with the collaboration of Mr. George P. Merrill, curator of the National Museum of Washington, D. C.

This bulletin is not claimed to be either exhaustive or final, but has been published at this time to call particular attention to the economic value of the building stones of North Carolina, their location and commercial possibilities, the evidence at hand showing the State to be well supplied with a great variety of these materials, particularly those of the granitic type, and with the possible exception of Georgia, to be better supplied both as to quality and variety than any of the other Appalachian States south of the New England States. Taking into consideration these facts, the mildness of the climate, allowing a longer period of outside work, and the cheapness of labor, this industry, with the proper fostering, should develop into a very extensive one.

This volume, which contains 283 pages, illustrated with 22 plates and 11 figures, is divided into eight chapters, with an appendix, of which the following is a brief synopsis:

Chapter 1 describes in detail the essential qualities of building stone, the surface features of the State and its geographic position in reference to other than local markets.

Chapters 2 to 7, inclusive, cover in detail the varieties, structure, color, weathering qualities, quarrying and working and the uses, together with the geographical distribution of the granites, gneisses and associated crystalline rocks; the dikes and

veins penetrating the crystalline rocks; limestones and marbles; serpentine and verdantique marbles; sandstones and quartzites and dikes penetrating the sandstones. These stones are classified according to counties, and particular attention is called to those of known economic value and the various quarries worked are described in detail. Under the heading of marbles particular interest is attached to a new marble recently exposed in a cut in Mitchell county, it being pure white and of uniform texture, and very similar to the white marble of Tate, Ga.

Chapter 8 describes the various methods of quarrying and working stone, the many changes in the past 20 years, due mainly to the introduction of machinery, and reference is made to that particular machinery in most general use. This chapter also covers in detail some of the most important matters to be considered in opening new quarries.

Chapter 9 covers the weathering of building stones and contains tables showing various tests that have been made on stones from different localities throughout the State.

The appendix describes the availability of stones within the State for modern road-building purposes, also showing tests made on the stone suitable for that purpose.

The excellent and systematic manner in which this bulletin has been compiled evidences a great amount of work and painstaking care on the part of its authors, who have shown themselves to be thoroughly qualified and complete masters of their subject-matter. There should be no doubt that this volume, judiciously distributed and placed in proper hands, will contribute greatly toward the expansion along broader lines of the building and ornamental stone industry of the State.

The Iron and Metal Trades.

The *Iron Age* in its weekly review says: "Advises from Cleveland show that some of the ore interests have opened their order-books for the coming season and have entered a very considerable tonnage at advanced prices. The position of furnace managers who must now contract for ore consumption up to the spring of 1908 is not an enviable one.

"The pig-iron markets continue in an unsettled condition, with little doing in the Central West, where there is very little available. On the seacoast and the territory tributary to it foreign pig-iron is playing an increasing role. Aside from the spiegel and ferro-manganese, of which we always import some, and low-phosphorus iron, of which at least one cargo of about 4000 tons has been sold at \$26.65 delivered in Eastern Pennsylvania, there has been one cargo of foreign Bessemer ordered at a shade over \$23 delivered. The grades, however, of which the largest quantities are being ordered are Middlesborough and Scotch foundry irons. The English trade papers talk of purchases of warrants for American account aggregating 250,000 tons. This, of course, is very much exaggerated. So far as we can learn, shipments so far arranged during the whole of this movement will foot up to about 75,000 tons, some of which has arrived or is afloat, and the balance is to come forward during the next two months. This is certainly not an alarming quantity, and must be rather regarded as a welcome relief to embarrassed melters.

"All our plants are being driven at top-notch speed, which is reflected in the October records that are now being published. The mills of the Steel Corporation report the breaking of 121 records, of which 71 are to the credit of the Carnegie Steel Co. The blast furnaces of the Steel Corporation produced in October 1,008,433 tons, as against 990,103 tons, the best previous record, in March, 1906. The steel plants made a record in October of 1,282,750 tons of ingots, as compared with 1,270,834 tons in March last."

LUMBER

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

Building Shows No Abatement.

During the month of October there was no apparent cessation in building activity throughout the South and Southwest. Reports from the building departments of several representative cities of these sections indicate that there has been a steady and substantial increase in all lines of building construction. The monthly report of City Building Inspector James Wahrnberger of San Antonio, Texas, shows that permits were issued for frame, stone and brick dwellings to the value of \$52,850, and for buildings of all classes to the value of \$111,645. As compared with the record for the corresponding month last year these figures show an increase of \$28,265. In Dallas, Texas, City Building Inspector Roy Bristol is reported as saying that the valuation of buildings for which permits have been issued this year is about \$40,000 more than the total for 1905, the aggregate for the year reaching the value of \$2,847,000. Permits issued by Building Inspector Frank Pittman of Atlanta, Ga., for October show an estimated value of \$458,054, an increase over the corresponding month last year of \$191,497. It is estimated that the increase in building for this year over 1905 will show a larger gain than any similar period in the history of the city. According to records in the Building Commissioner's office at Jacksonville, Fla., there was a total of 115 permits issued in that city during October, an increase of 61 over September. Since May, 1901, permits have been issued for the erection of 6234 buildings. The building report from Little Rock, Ark., shows that the value of buildings for which permits were issued, to be erected outside the fire limits, was \$37,815, and inside the fire limits \$2750. In Louisville, Ky., 289 permits were issued for new buildings during October, representing an estimated valuation of \$278,920. Building Inspector W. C. Fulcher of Knoxville, Tenn., issued permits for the month to the value of \$86,894, the most prominent building being the Luttrell Street M. E. Church, to cost about \$35,000. In Memphis, Tenn., 286 permits were issued, with an estimated value of \$271,666. As compared with the record for October, 1905, this shows but a slight increase, but it is understood that a number of permits for large structures were withheld and will be issued during November. Operations in Birmingham, Ala., were not as active as usual, the estimated value of structures for which permits were issued being \$107,860. In Oklahoma City, O. T., building construction is active, and considerable work is in progress. Operations have also been very active in Austin, Texas, for several months, especially in the residence sections.

Maryland's Forest Reserve.

At a recent meeting of the State Board of Forestry of Maryland a resolution was passed recommending the Governor to accept a gift of 3000 acres of land which has been tendered the State for the nucleus of a forest reserve. A report of State Forester F. W. Besley, covering the progress of the work for the last four months, says that prominent features of the work are finding out the forest resources and forest needs of the State, popularizing the subject of forestry, advising and offering assistance to woodland owners in introducing better forest management, and introducing forest management on the State forest reserve lands and the development of a forest policy for the State. In connection with the educational feature of the work the report states that there has been

secured and placed in shape for ready reference in the forester's office at Johns Hopkins University all the forest literature obtainable without charge from the different States and the Federal Government. The number of publications, including bound volumes, bulletins, pamphlets, etc., reaches 172, to which it is intended to add to from time to time and offer the use of the library to the public.

Shortage of Cars.

In an endeavor to devise some means for the alleviation of the situation as caused by an entirely inadequate car supply, about 50 members of the Southern Lumber Operators' Association met in Memphis, Tenn., last week. The association, which includes in its membership operators from Arkansas, Texas, Louisiana, Missouri, Mississippi and Alabama, was called to order by President C. D. Johnson of St. Louis, Mo. A resolution was adopted that a statement of conditions be submitted to the railroad companies with a request that a larger percentage of equipment be supplied. A resolution was also adopted favoring the passage of a reciprocal demurrage law. Officers of the association are Messrs. C. D. Johnson, president; J. A. Freeman of St. Louis and L. L. Major of Mississippi, vice-presidents, and George K. Smith of St. Louis, treasurer and acting secretary.

To Operate in Arkansas.

The Fee-Crayton Hardwood Lumber Co. of Newport, Ark., has been incorporated with a capital stock of \$150,000 and will erect its first mills and maintain its principal office at Newport. The company has purchased valuable timber lands and stumpage, which will enable the plant to operate for some time, and in this connection it is stated that a steamboat and barge line will be incorporated for the transportation of oak, hickory and other hardwoods to the mill. Trackage facilities are now being installed, and it is expected to have the plant in operation early next year. Officers of the company are Messrs. Frank F. Fee of Newark, Ohio, president and manager, and E. W. Crayton, secretary and treasurer.

Shenandoah Lumber Co.

The Shenandoah Lumber Co. of Parkersburg, W. Va., recently incorporated with a capital stock of \$1,000,000, has perfected its organization by the election of the following officers: President, C. E. Bryan; vice-president, S. Mills, Jr.; secretary, G. W. McElfresh; treasurer, H. L. Hastings. The purpose of the company is to take over the properties of the United States Lumber Co., which is said to comprise about 25,000 acres of timber lands in Bath and Highlands counties, Virginia. The board of directors is composed of Messrs. C. E. Bryan, L. Dudley, J. H. Grogg and G. C. Enoch, all of Parkersburg; S. Mills, Jr., G. W. McElfresh, J. W. Young, J. H. Mills and H. L. Hastings of Caldwell, Ohio.

For Builders' Exchange.

About 25 representative builders and contractors of Richmond, Va., including plumbers, carpenters and electricians, have organized a builders' exchange with temporary officers and appointed a committee on permanent organization. Another meeting is being held today for the purpose of effecting this organization. The temporary officers are Messrs. John Chappell, president, and C. W. Montgomery, secretary.

Important Timber-Land Deal.

In the announcement from Livingston, Tenn., concerning the purchase by the Hankins-Speck Lumber Co. of that city of a 400-acre tract of timber land for \$50,000 there is presented a clear conception of the

present and increasing value of the timber resources, not of one section, but of every timber section of the South. The property referred to was sold by Messrs. H. R. Vaughn of Livingston and J. D. Hatcher of Eagle Creek, who are said to have purchased it for \$12,000 five years ago and have since removed \$6000 worth of timber from it. It contains now, it is stated, more than 20,000 trees of white oak, poplar, walnut and beech.

To Save Fallen Timber.

Mr. John B. Foley of Chicago, who has timber interests in the southern part of Baldwin county, Alabama, was reported a few days ago from Mobile as making investigations with a view to saving the timber on his property which was blown down by recent storms. In this connection he is considering the advisability of cutting the logs off at both ends and scoring them the entire length. This method, it is said, allows the sap to dry from under the bark and for a longer time prevents the timber from becoming infested with worms. To facilitate development work Mr. Foley is reported as contemplating the construction of a railroad through his lands.

Staves Used in 1905.

Reports from 43 manufacturers of ale and beer barrel stock show that 12,578,000 staves and 2,167,000 sets of heading were used during the year 1905. Of the beer barrels manufactured, the quarter-barrel size required 5,480,000 staves and ale hogsheads 123,000. Returns from different States indicate that Kentucky produced the largest quantities of both staves and headings, for which white oak is used exclusively.

Lumber Notes.

Three barges from Philadelphia, Pa., are loading about 400,000 feet of lumber and 300 cords of poplar wood at Bermuda Hundreds, Va.

The schooner Thelma cleared from Jacksonville, Fla., last week with a cargo of 450,000 feet of yellow-pine lumber for Washington, D. C.

The West Tennessee and Kentucky Retail Lumber Dealers' Association held its annual convention at Union City, Tenn., last week. The place and date selected for the next meeting is Jackson, Tenn., on April 26, 1907.

Turpentine operators in the counties of Hamilton, Suwanee and Columbia, Florida, met at Lake City last week and organized the Lake City Division Turpentine Operators' Association. Another meeting will be held on November 15.

The American Turpentine & Tar Co. of New Orleans, La., has been incorporated with a capital stock of \$500,000. Officers of the company are Messrs. Charles E. Meriwether, secretary-treasurer, and Geo. O. Gilmer, director and manager.

A report states that Messrs. O. G. Fitzpatrick of Stanton, Tenn., and F. M. Hara, president of the Canada Wheel Works of Meriton, Canada, have purchased 10,000 acres of hickory timber in Wayne county, Tennessee, and will arrange at once for its development.

The Long-Bell Naval Stores Co. of Kansas City, Mo., has recently been incorporated with a capital stock of \$40,000 by Messrs. R. A. Long, C. B. Sweet, H. E. Sweet and associates to engage in turpentine operations in Louisiana. Mr. W. B. Gillican of New Orleans is the manager in charge.

The Thomas F. Welch Lumber Co. of Grafton, W. Va., has been awarded a contract by a window-glass manufacturing company of Grafton to supply it with box lumber for one year. The lumber, of which from 150,000 to 200,000 feet will probably be required, is to be surfaced on

the side, and it is said will necessitate the installation of special machinery by the lumber company.

Shipments of lumber from the port of Jacksonville, Fla., during October amounted to 25,947,245 feet, distributed as follows: Cypress lumber, coastwise, 1,246,000 feet; yellow-pine lumber, coastwise, 19,420,083 feet; crosssties (105,558), coastwise, 4,223,320 feet; yellow-pine lumber, foreign, 1,057,842 feet.

The American Naval Stores Co. of Savannah, Ga., has been incorporated with a capital stock of \$1,500,000 to manufacture and deal in naval stores, etc. Incorporators of the company are Messrs. Albert R. Elmendorf, Spencer S. Thomas, Morris F. Knudson, George Bringolf of New York and Robert Campbell of Newark, N. J.

The steamer Chelford cleared from Sabine, Texas, last week with a cargo of 2,000,000 feet of pitch pine for European ports. The schooner James Pierce, under charter to the Litcher & Moore Lumber Co. of Orange, Texas, is loading a cargo of railroad ties for Philadelphia, Pa. This is the first of four cargoes, aggregating 5,000,000 feet, which the Litcher & Moore Lumber Co. will send out on this vessel.

FOREIGN LETTERS

The MANUFACTURERS' RECORD is so widely read in foreign countries that we are in constant receipt of many letters from all parts of the world. Some of these letters indicate the disposition of foreigners to buy American goods, and are therefore of interest to our readers.

Writing Novelties, Plated Jewelry, Etc.

Juan Garcia Villasanté, 16 Gran Via, Bilbao, Spain:

"Being engaged in this branch of trade (typewriters, calculating machines, manifolders, shorthand supplies and kindred accessories), I would like to get in communication with a maker of 'bands' (presumably inked ribbons for typewriters). I am interested in getting full particulars on all practical writing novelties. An article which I believe will have good sale in this country is plated jewelry—chains, rings, bracelets, buttons, etc. It would not be difficult for me to handle other goods provided they are novel and salable. I can take business either on my own proper account or on commission."

Various Kinds of Products.

Francisco J. Peraza, Tenerife, Puerto Cruz, Canary Islands:

"I should like to have catalogues, with best terms and bottom prices, on pianos and organs (non-automatic and automatic); furniture, especially chairs of wood and cheap as possible; combs and other articles for ladies' toilet, but of low price; postal cards, coaches, perfumery and rice powder, of which I can use large quantities."

Barley and Skins.

Eugene Tonna & Co., Tripoli, Barbary: "We believe that some trade might be done here in American barley, skins, etc."

Seeking Chair Factory Location.

A letter received by the MANUFACTURERS' RECORD refers to an opportunity for some Southern city to secure a manufacturing enterprise. It is from the Continental Chair Co. of Mebane, N. C., and says in part: "We are in a position to entertain a proposition to locate our factory in another section. We prefer, of course, locating in an oak-timbered country. We have been in this business for a number of years and have an experienced force, many of whom would gladly locate with us. We will invest \$20,000 should we be able to secure a like amount in the town in which we locate."

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

ILLINOIS CENTRAL.

Progress of the Company and Its Territory Shown in Annual Report.

The Illinois Central Railroad has published its fifty-sixth annual report, covering the fiscal year ended June 30, 1906. During the year the company operated an average of 4424 miles of line, and the gross earnings from traffic were \$51,636,405; operating expenses and taxes were \$36,437,470, and the net earnings were \$15,198,935. After the payment of interest and rentals the net income was \$10,862,339. Out of this there were paid two dividends, amounting to a total of 7 per cent., the amount disbursed being \$6,652,800. There was also spent for betterments \$4,164,739, leaving a surplus of \$1,313,826.

The gross earnings increased \$2,127,755, or 4.30 per cent.; operating expenses increased \$1,218,218, or 3.68 per cent.; taxes increased \$107,545, or 5.30 per cent.; net earnings increased \$801,991, or 5.57 per cent.; total income increased \$1,297,473, or 7.56 per cent.

The company has been engaged in several important pieces of construction work, one of these being the Memphis & State Line Railroad, designed for freight trains to get around the city of Memphis and thereby avoid heavy grades and congestion on the present line through the city. This road will be a double-track line from Woodstock, Tenn., north of Memphis, to East Junction, Tenn., southeast of the city, a total distance of about 16 miles. This work will cost about \$1,150,000, and nearly \$275,000 has now been spent upon it. The company is also constructing for its Birmingham route a connecting line from a point near Jackson, Tenn., to a connection with the Mobile & Ohio Railway, three miles, and another but much larger connecting link from Corinth, Miss., to Haleyville, Ala., 80 miles. This will make the route to Birmingham consist of Illinois Central from Jackson, Tenn., to a connection with the Mobile & Ohio, three miles, and over that road to Corinth, Miss., 55 miles; from Corinth to Haleyville Illinois Central 80 miles, from Haleyville to Jasper, Ala., Southern Railway 40 miles, and from Jasper to Birmingham over the St. Louis & San Francisco Railroad 41 miles. This will make the total distance from Jackson to Birmingham about 219 miles. The cost of building the Illinois Central connection is estimated at \$4,380,000, and land has been secured in Birmingham for a freight terminal which is to cost complete \$1,120,000. At present about \$1,271,000 has been spent on the line to Birmingham. The company has also begun the construction of a line 27 miles long from a point near Bloomington, Ind., to Bedford, Ind.

The report notes the acquirement of the western division of the Tennessee Central Railroad from Nashville, Tenn., to Hopkinsville, Ky., about 85 miles, with an option until July 1, 1908, to purchase this property. Included in this is the option to purchase jointly with the Southern Railway the property of the Nashville Terminal Railroad Co., including its franchise and belt line. Since December 1, 1905, the Illinois Central has operated the western division.

There was spent during the year for betterment of the property \$3,664,517, among the betterments being new equipment consisting of 25 locomotives, 1 dining car, 1435 freight cars and 2 work cars. The average weight of rail in main track is now over 74 pounds to the yard, as against 73½ pounds last year. The equipment

consists of 1193 engines, 813 passenger, mail and express cars, 56,227 freight cars and 2026 work cars. This includes 7 passenger cars and 1001 freight cars for which orders have been given. The company has in service 677½ miles of second track and about 72½ miles of third and other additional main line tracks. To complete the double track from Jackson, Miss., to New Orleans, La., 185 miles, there remains to be put in service about 10½ miles.

During the year the number of tons of revenue freight carried one mile was 6,230,593,529, as compared with 5,559,139,454 last year. The number of passengers carried one mile was 511,391,077, a decrease as compared with the preceding year, owing doubtless to the fact that the first half of the preceding year included heavy traffic to and from the World's Fair at St. Louis.

PUSHING TO BIRMINGHAM.

Annual Report of the A., B. & A. Also Notes Work at Brunswick.

The annual report of the Atlanta, Birmingham & Atlantic Railroad Co., covering the fiscal year ended June 30, 1906, shows gross earnings \$1,133,924; operating expenses, including taxes, \$829,740; net earnings, \$304,184; surplus after payment of interest on funded debt, etc., \$73,858. Concerning the increase in expenses as compared with the previous year, it is said that about 80 per cent. was in fuel, wages and taxes. The report, so far as details of operation are concerned, covers about the same mileage as did the last annual report of the Atlantic & Birmingham Railway, which is now part of the Atlanta, Birmingham & Atlantic Railroad.

The company is pushing its new construction, which includes an extension of main line from Talbotton, Ga., to Birmingham, Ala., 216 miles, with a line from Chalybeate Springs, Ga., to Atlanta, Ga., 70 miles. All the work is under contract, while part of the mileage is entirely completed and track laid, and the grading of a considerable part of the remainder is also finished. The grades on the old Atlantic & Birmingham Railway will be revised, contracts for that purpose having been let which will reduce the maximum of 1 per cent. to .6 of 1 per cent. Contracts have also been let for passenger and freight terminal stations at Brunswick, Ga., and by the end of the year it is expected that they will be completed. Contracts are likewise let for steamship terminals at Brunswick, which will include two modern piers and four warehouses. It is expected that the first pier will be ready by December.

The main lines of the railway are Brunswick to Talbotton, 239 miles; Nichols to Waycross, 20 miles; Fitzgerald to Thomasville, 81 miles; total main line at present, 349 miles. Main line under construction, approximately 293 miles. The average mileage operated during the past year was 324 miles; the total assets of the company are \$21,714,780, of which \$13,796,463 represent the cost of road, equipment and property and \$7,327,728 represent the Atlantic & Birmingham Construction Co.

The company carried 760,211 tons of freight, and the number of tons carried one mile was 66,019,591; the earnings per mile of road were \$2385; the net earnings per mile of road were \$549; the earnings per ton were \$1.01½, and the earnings per ton mile were 1.169 cents. There were also carried 540,556 passengers, and the passenger mileage was 10,795,760 miles; the earnings per mile of road were \$941, and the net earnings were \$339; the earnings per passenger were 56.394 cents, and the earnings per passenger mile were 2.824 cents.

The equipment of the company consists of 43 locomotives, 39 passenger train cars,

1325 freight steam cars and 18 road service cars.

H. M. Atkinson is president; P. S. Arkwright, first vice-president; George Dole Wadley, second vice-president and general manager; C. B. Wilburn, general superintendent; G. C. Smith, superintendent; H. C. McFadden, general freight and passenger agent; W. J. Swain, auditor; R. E. Cullimane, secretary.

POOR'S MANUAL.

The South Has About 61,000 Miles of Railroad Out of 217,341 Miles.

Poor's Manual of Railroads for 1906 shows that the length of railroads completed at the beginning of the present calendar year in the United States was 217,341 miles, a net increase of 4947 miles as compared with the preceding year. Although the Manual gives the length of railroads completed for the entire year of 1905, the statistics concerning traffic earnings, etc., are for the fiscal year ended June 30, 1905, as most of the railroad companies prepare their annual reports covering the last half of one year and the first half of the next year. Thus reports upon traffic statistics, earnings, etc., complete were received covering 214,874 miles, and partial statistics were received covering 215,507 miles of line.

These figures show that the total traffic revenue of the greater mileage was \$2,112,197,770, the operating expenses were \$1,368,549,574, and the net earnings \$685,464,488; other receipts were \$80,927,650, and the total available revenue was \$766,392,147. This revenue was disbursed as follows: Taxes, \$54,553,620; interest on bonds, \$247,155,897; other interest, \$12,956,346; dividends, \$193,753,869; rentals, interest, dividends and miscellaneous, \$76,239,722; miscellaneous payments, \$59,856,679; total payments, \$644,516,133. This left a surplus over fixed charges and other payments of \$121,876,014.

The passenger and freight statistics cover only 214,874 miles of railroads. On these there were 1,435,321,748 tons of freight moved, and the tons of freight moved one mile were 187,375,621,537. The passengers carried numbered 745,446,641, and the passengers carried one mile numbered 23,906,420,668. The passenger-train mileage was 467,270,447 miles, the freight-train mileage was 558,111,747 miles, and the mixed-train mileage was 26,711,444 miles. The total revenue-train mileage was 1,052,093,638.

The total assets of all the railroads in the United States were \$16,292,880,823, of which \$12,143,997,551 represents the cost of railroads and equipment. The capital stock was \$6,741,956,825, the bonded debt \$7,425,261,901, and profit and loss \$724,128,794. The excess of assets over liabilities is given as \$650,821,816.

A table giving the mileage of railroads by States shows that the South on December 31, 1905, had 60,753 miles of railroad. Texas, with 11,949 miles, had more railroad track than any other State except Illinois, which was only 10 miles in the lead, but Pennsylvania was not far behind Texas, with 11,161 miles of line. By this time Texas has doubtless outstripped Illinois in the matter of new construction and stands at the head of all the States as regards length of railroads.

Poor's Manual is published by Poor's Railroad Manual Co., 68 William street, New York.

Railroad Statements.

The Northern Central Railway Co. has issued a statement comparing earnings and expenses for September, 1906, and for the nine months ended September 30, 1906, with the same periods of 1905 as follows: September, 1906, gross earnings, increase, \$103,800; expenses, increase, \$76,100; net

earnings, increase, \$27,700; nine months ended September 30, 1906, gross earnings, increase, \$847,800; expenses, increase, \$237,200; net earnings, increase \$610,600.

The following statements are furnished by Fisk & Robinson of New York:

Gulf & Ship Island Railroad for September, 1906, gross earnings, \$185,347; net earnings, \$43,317; for September, 1905, gross earnings, \$142,349; net earnings, \$39,425. For the three months ended September 30, 1906, gross earnings, \$580,236; net earnings, \$118,186; for the same period in 1905, gross earnings, \$461,857; net earnings, \$130,963.

Louisiana & Arkansas Railway for September, 1906, gross earnings, \$105,300; net earnings, \$36,404; for September, 1905, gross earnings, \$74,400; net earnings, \$28,980. For the three months ended September 30, 1906, gross earnings, \$314,009; net earnings, \$104,353; for the same period in 1905, gross earnings, \$224,888; net earnings, \$90,301.

Arkansas Pacific Plans.

President George D. Locke of the Arkansas Pacific Railway Co., Missouri Trust Building, St. Louis, writes the MANUFACTURERS' RECORD concerning the corporation, which was recently chartered. He says:

"Our proposed line is to be 1500 miles long and will extend from Memphis, Tenn., to Denison, Texas, with branch lines to Mangum, Okla., and Tulsa, I. T.; Pine Bluff, Ark., and Newport, Ark.

"The officers are Geo. D. Locke, president; T. D. Kinman, vice-president; Jas. Gates, secretary and treasurer, and the offices of the company are in the Missouri Trust Building, St. Louis.

"We traverse a rich agricultural, timber and mineral country. We can build the line on a .6 of 1 per cent. grade with 3 degree curves, and expect to be ready to let the contract about February 1 1907. The engineers are making the location survey now. The chief engineer has not yet been appointed, and I will look after the duties of his office until the appointment is made."

ZIMMERMAN'S COAL LINE.

Will Use C. & O. Route, But a Branch Must Be Built.

A press dispatch from New York says that Eugene Zimmerman's Detroit, Toledo & Ironton Railway will be consolidated with the Northern Coal & Coke Co. by the formation of a Canadian holding company. Plans have been completed and only details have to be worked out. Mr. Zimmerman and H. B. Hollins & Co. of New York own a majority of stock in both companies. The holding company will be capitalized at an amount sufficient only to hold a majority of both companies, or about \$18,000,000.

It is proposed to make the coal mined in Eastern Kentucky available for shipment to points on the Detroit, Toledo & Ironton Railway and also to Canada. Instead of building a new line from Ashland to Pike county, Kentucky, it is proposed to use the Chesapeake & Ohio Railway for about two-thirds of the distance and then to build a branch about 40 miles long.

Spur to Sugar Mills.

Mr. E. C. Burgess, chief engineer of the St. Louis, Brownsville & Mexico Railway, Corpus Christi, Texas, sends the MANUFACTURERS' RECORD the following:

"This company is now doing the grading for a spur track to the sugar mills on the Retrieve Plantation owned by Sealy, Hutchings & Co., bankers, of Galveston, Texas. This spur begins at a point on the main line of the St. Louis, Brownsville & Mexico Railway (Bay City-Algoa division), about four and one-half miles south of Angleton, Texas, the county-seat

of Brazoria county, and extends southeastwardly about one mile to the present location of the sugar mills on Oyster creek. This plantation consists of 3000 acres of rich red soil, the finest in this country for sugar-cane, and nets on an average of \$50 per acre. Mr. Burgess has charge of this work, while Mr. Charles Heyser, principal assistant engineer, is in actual charge of the construction, which should be completed in the course of two or three months."

Birmingham Southern Extension.

Mr. Frank H. Crockard, general manager of the Birmingham Southern Railroad Co., Birmingham, Ala., writes the MANUFACTURERS' RECORD thus:

"A six-mile extension is contemplated for the purpose of developing additional coal mines along this line.

"One hundred pressed-steel cars have also been ordered from the Pressed Steel Car Co., and our second new locomotive will be delivered this morning.

"There will be no connections on this new line with roads other than those now joining our lines. Mr. H. M. Urban of Ensley, Ala., is the engineer in charge of all work, and he is also in charge of the plans and bids."

A Missouri Interurban.

Mr. W. C. Picking, Memphis, Mo., writes the MANUFACTURERS' RECORD: "We have financed and are about ready to begin the construction of an interurban line of road from Fairfield, Iowa, via Keosauqua and Milton, Iowa, to Memphis, Mo., and intend constructing a southern extension from Memphis to Mexico, Mo.; also a northern extension from Fairfield to Cedar Rapids, Iowa. The distance now ready for construction is 52 miles. The name of the corporation is the Iowa-Missouri Power & Traction Co. J. W. Andrews is the engineer. The line will run through a first-class farming country."

Railroad Notes.

Mr. G. B. Harper has been appointed traveling passenger agent for the Illinois Central and the Yazoo & Mississippi Valley railroads at Jackson, Miss., succeeding Mr. J. Hunter Jones, resigned.

It is announced that W. A. Garrett, general manager of the Queen & Crescent Route, Cincinnati, has accepted the position of first vice-president and general manager of the Seaboard Air Line, and will take up his new duties at Portsmouth, Va., on December 1.

William Kenefick of Kansas City is quoted as denying the report that the Missouri, Oklahoma & Gulf Railroad had been sold to the Harriman interests. He is further reported as saying that he intends to extend the line first southward to Denison, Texas, and then northward to Pittsburg, Kansas.

Big Contracts for Paving.

One of the various gratifying phases of progress in connection with Southern developments is the extent and character of the municipal improvements announced from time to time. Water-works and electric-lighting plants are being established by many Southern cities, and improvements to streets and sidewalks are being contracted for steadily. Some important paving contracts were closed last week by the city of Knoxville, Tenn. They call for the paving of 16 improvement districts as follows: Southern Bitulithic Co., Nashville, Tenn., five districts at about \$120,000; Southern Paving & Construction Co., Chattanooga, Tenn., nine districts at about \$149,000, and Barber Asphalt Co., two districts at about \$14,000. That is a total of \$283,000 worth of paving improvements.

TEXTILES

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the MANUFACTURERS' RECORD. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

The Crescent Manufacturing Co.

The Crescent Manufacturing Co. of Spartanburg, S. C., will add to its present equipment of machinery, which is 129 knitting machines and accompanying apparatus. It will contract this month for from 15 to 25 more knitting machines and three to five loopers, but no additions will be made to the dyehouse and finishing department. The Crescent mill is now manufacturing about 6000 pairs of ribbed hose every day, and its output will be materially increased when the new equipment is in position, which will be by January 1.

The Dudley Shoals Cotton Mills.

Messrs. D. A. Whisnant, D. H. Warlick and associates have incorporated the Dudley Shoals Cotton Mills Co. with a capital stock of \$100,000. They compose the Dudley Lumber Co., which the MANUFACTURERS' RECORD referred to last June as having decided to build a 5000-spindle mill in 1907 for the manufacture of No. 50 cotton yarns. Electricity developed from water-power is to be used for driving the machinery. Further details will probably be announced soon.

The Cotton Movement.

In his report for October 31 Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight in the first two months of the present season was 3,349,011 bales, an increase over the same period last year of 41,493 bales; the exports were 1,582,058, an increase of 156,468 bales; the takings were by Northern spinners 320,150 bales, a decrease of 88,227, and by Southern spinners 477,315 bales, an increase of 5162 bales.

The Roanoke Mills Co.

At a meeting of the directors of the Roanoke Mills Co. at Richmond, Va., last week the enlargement of the plant at Roanoke Rapids, N. C., was considered. The directors appointed a committee to investigate and report on the advisability of increasing the present equipment by 50 per cent. There are 15,904 spindles and 600 looms in position now.

A 5000-Spindle Yarn Mill.

A cotton-yarn mill will be established at Corinth, Miss., by a company now being organized by W. C. Frost of Athens, Ala. The capital stock will be \$100,000, and the equipment of machinery will be 5000 spindles with accompanying apparatus for manufacturing 20 to 30 two-ply yarns. Mr. Frost invites estimates on complete equipment of machinery.

Textile Notes.

It is reported that the Hudson Valley Mills of Kingston, N. Y., will establish a knit underwear mill at Fort Worth, Texas.

It is reported that Philip Jones of Tyler, Texas, will organize a company with capital stock of \$100,000 for the purpose of building a cotton mill.

Messrs. Fuller E. Callaway, Pope F. Callaway, Ely R. Callaway and J. A. Perry of Lagrange, Ga., have incorporated the Calumet Company, with capital stock of \$10,000, for textile-manufacturing purposes.

Messrs. A. L. Gardner, I. N. Rainey, W. H. Carroll and others have incorporated the Memphis Cotton Waste Co. of Memphis, Tenn., with capital stock of \$50,000, to manufacture cotton rope and bags from waste cotton.

It is stated that W. S. Gray, recently mentioned in connection with a proposed cotton-mill enterprise at Woodruff, S. C., will organize a stock company with capital stock of \$200,000 to establish the plant. Site has been purchased.

The Bedford Mills Co. of Bedford City, Va., manufacturer of woolen goods, will build an addition of brick, 84x58 feet. This building will be used as a burling, specking, cloth-rolling, packing and shipping room. No machinery will be required.

It is stated that Sam Lazarus of Houston, Texas, is planning the organization of a company to build a large cotton mill at Alcoa, midway between Houston and Galveston. Mr. Lazarus is understood to have submitted propositions to English cotton manufacturers to become interested in the company.

The MANUFACTURERS' RECORD is advised that the recently-reported purchase of the Belmont Cotton Mills at Shelby, N. C., by J. C. Smith has not been consummated. It is understood that A. C. Miller, owner of the property, will continue its operation, the equipment being 3100 spindles for manufacturing yarns.

The Eagle & Phenix Mills of Columbus, Ga., is considering the installation of an equipment for driving its textile machinery by electricity. This installation is designed for the purpose of relieving the present rope drive to some extent, but not to supplant it entirely. Details will probably be decided in the near future.

Clays—Their Occurrence, Properties and Uses, with Special Reference to Those of the United States. By Heinrich Ries, Ph. D., assistant professor of economic geology, Cornell University; fellow Geological Society of America; member American Ceramic Society; member American Institute Mining Engineers and author of Economic Geology of the United States. Published by John Wiley & Sons, New York, and Chapman & Hall, London. Price \$5.

Although few mineral products have, perhaps, been more extensively treated in the scientific and technical literature than clay, the published facts are widely scattered, and many of them are not always easily accessible. Believing that there was a demand for a comprehensive work on this subject, the author has gathered these various facts together in a volume that should be of great value to geologists, chemists and others interested in clay and its applications. As the title of the work indicates, the subject is treated mainly from the American standpoint, and in its preparation the author has drawn freely on his own published reports, as well as those of others, credit for this information being given in the footnotes. The author has covered his subject in a thorough and systematic manner, and the many cuts which the volume contains are well chosen and illustrate the descriptive matter in a clear and comprehensive manner. The various chapters treat the origin of clay, the chemical and physical properties of clay, kinds of clay, methods of mining and manufacture, distribution according to States, and fuller's earth. The arrangement of the subject-matter of the State descriptions by geologic formations has been selected as permitting the greatest uniformity of treatment, and those desiring to look up the distribution of any one kind of clay can easily do so by reference to the index. Due acknowledgment for assistance and suggestions in the compilation of the work is accorded in the preface.

MINING

To Develop Sulphur Deposits.

For the purpose of developing extensive sulphur deposits at Johnson's Bayou in Louisiana Judge E. B. Ments of Houston, Texas, is reported as promoting the organization of a mining company to be composed of capitalists of Houston, Texas, and Boston, Mass. It is stated that 32,000 acres of land have been purchased from the Fort Sabine Mining Co. and upon the property there has been located a 52-foot vein of sulphur at a depth of 300 feet. Plans for its development contemplate the construction of a railroad from Johnson's Bayou to Lake Charles, La., under the charter of the Gulf, Mentz & Lake Charles Railroad, which has recently been secured, actual construction work to begin as soon as preliminary details and surveys have been completed.

Coal Company Organized.

In connection with the promotion of the coal company by Messrs. Frank M. Osborne and J. R. Nutt of Cleveland, Ohio, for the purpose of developing about 30,000 acres of coal lands in the Pocahontas-New River field of West Virginia, mention of which was made last week, it is now announced that the New Flat-Top Mining Co. of Cleveland has been incorporated with a capital stock of \$300,000. The property of the company is located in Raleigh county, and is accessible to the Deepwater, Chesapeake & Ohio and Louisville & Nashville railroads. Incorporators of the company are Messrs. O. C. Nelson, H. B. Corner, J. R. Nutt, E. V. Hale and H. D. Messick, all of Cleveland.

To Develop Kaolin Deposits.

President Milton Wolf of New York city and Secretary W. E. Bradley of the United Kaolin Properties Co. of Chicago are reported from San Antonio, Texas, as having recently visited kaolin deposits near Leakey, in Edwards county, Texas, with a view to inaugurating development work. The company is said to have purchased the land upon which the deposits are located and leased the surrounding property. It is now arranging details for the construction of a railroad line 40 miles in length, either from Sabinal, Chatfield or Uvalde, on the Southern Pacific lines, to the location of its deposits.

West Virginia Coal.

State Mine Inspector J. W. Paul of West Virginia estimates that the coal production of the State in the year ended June 30, 1906, was about 42,000,000 short tons. That is nearly 5,000,000 tons greater than the production in the calendar year 1905.

Mining Notes.

The Hart County (Tenn.) Oil & Mineral Co. is reported to have closed a contract with a Chicago company for the delivery of 8000 carloads of kaolin, to be used for manufacturing queensware. It is stated that the clay will be taken from the company's mines near Bonnieville, Tenn.

The Whitsett Mining Co., 315 Miners' Bank Building, Joplin, Mo., recently incorporated with a capital stock of \$80,000, will operate a lead and zinc-mining plant of 300 tons capacity, already erected. Among the managing officers of the company are Messrs. Jamot Brown and Albert Bailey.

Messrs. Frank P. Christian, James R. Gellican, Thomas D. Christian and T. W. Gellican, all of Lynchburg, Va., have incorporated the Black Wolf Coal & Coke Co. with a capital stock of \$100,000 for the purpose of mining coal, manufacturing coke, etc., at Kuro (not a postoffice), West Virginia.

MECHANICAL

Temple Ingersoll Electric Air Drill.

An accompanying illustration shows a new and important invention, the Temple Ingersoll electric air rock drill. This drill is offered as solving the problem of the employment of electricity for driving rock drills.

This drill is not in fact an electric drill, but an air drill, as completely so as any air-driven drill ever invented, and indeed more so, since this drill cannot be driven by steam. While it is not an electric drill, it is still driven by the electric current, which is brought as close to the drill as possible to do the driving, and the drill apparatus when in use anywhere has no connection with its source of power except through the wires which are led to it.

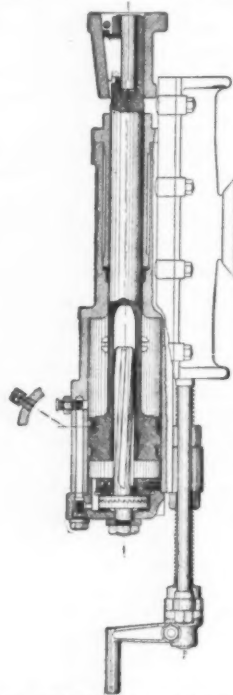
The sectional view shows the construction. There is a drill cylinder quite similar to that usual cylinder of the air or steam-driven drill. This cylinder is slid back and forth in a shell by a hand-operated feed screw and the shell is mounted upon tripod, bar or column in the usual way. The cylinder of this drill, while similar to that of the steam or air-driven drill, differs from the latter in important particulars. The cylinder has no valves or valve-operating devices, no valve chest or tortuous ports or passages, no buffers, no yielding springs and fastenings for the heads, nor the equivalents of these parts in any disguise of them. At each end of the cylinder there is simply an ample and free opening to which a hose may be attached. Provision is made for rotating the piston.

Accompanying each individual drill, and an essential part of the apparatus, is a little truck which can be moved around anywhere as easily as the drill itself. Upon this truck are two small vertical single-acting air cylinders with trunk pistons, these operated alternately by two cranks on a shaft below them, speed-reducing gears connecting the shaft with a small motor on the same truck. The upper end of one of these compressor cylinders is connected by a short hose six or eight feet in length, and never longer, to one end of the drill cylinder, and the other end of the drill cylinder is similarly connected to the other compressor cylinder. The body of air contained in either end of the drill cylinder, in its companion compressor cylinder and in the hose connecting them has no chance to get out, and remains there constantly, provision being made for supplying leakage losses. Similarly the two bodies of air in the two ends of the drill cylinder and the connections of each have no communication with each other and remain distinct and intact.

This is the entire apparatus, and the operation is as simple as could be imagined. The air, to begin with, has a normal pressure in both lengths of hose and their connected cylinders of about 30 pounds gauge. If, now, the crankshaft turns and the piston in one of the air cylinders advances the pressure rises in that cylinder and in the end of the drill cylinder to which it is connected, and, as the compressor pistons work alternately, the pressure in the other cylinder and in the other end of the drill cylinder falls, the difference of pressure on the two sides of the drill piston causing it to make its stroke. When the movement of the compressor pistons is in the other direction the drill piston makes its return stroke, and in this way as the crankshaft turns the drill piston makes its complete double stroke for each revolution, and this is kept up continuously as long as the motor runs and drives the cranks. The compressor cylinders, it will be seen, might more properly and less misleadingly be called pulsators, and this name they may in time acquire.

There are a number of important advantages

connected with this arrangement which are not at once self-evident. First of all is the great simplification which is effected, although many will doubtless at first think of it as a complication. All the most complicated, troublesome and costly of maintenance parts of the drill are got rid of completely, the valves, valve-operating devices, valve chest, labyrinthian ports, buffers, springs, side rods, split-front heads, etc., and nothing is required to take their place. So also in the compressor cylinders there are no valves, inlet or dis-



TEMPLE INGERSOLL ELECTRIC AIR DRILL.

charge, and no water jacket is required, as the cylinders do not heat up, cooling as much on the one stroke as they are heated on the other. The lubrication of the drill is simple and effective, an important particular in connection with it, and one which will be especially appreciated in gold mining, being that there is no exhaust to scatter the oil, which is used over and over the same as the air.

The electric air drill requires no allowances or concessions. It strikes an astonishingly fierce blow, a harder blow normally than the air drill of the same size. This has been discovered first in extensive practice and experiment with the drill, and finds easy explanation in the fact that at each stroke the drill piston is driven by an increasing pressure from the compressor piston, which may be said to be chasing and gaining upon it, instead of by a diminishing pressure, as in the regular air-driven drill, caused by its running away from its source of supply. In the same way the opposing pressure upon the advancing side of the piston is a diminishing pressure, and these combined cause a more rapid acceleration of the piston movement and a consequent higher velocity and force at the moment of impact of the steel upon the rock.

It is claimed that this new drill takes only one-third to one-fourth of the power to drive it. This is accounted for by the fact that the same air is used over and over and that all of its elastic force is availed of in both directions instead of exhausting the charge for each stroke at full pressure. There are also no large clearance spaces to fill at each stroke, as these are never emptied.

A curious result of the mode of driving the piston is found in its way of yanking itself free when the bit sticks in the hole and going on with its work again. When the bit of the ordinary air-driven drill sticks in the hole that is the end of it, as

far as the drill is concerned, and it is for the drill runner to free it as best he may. He runs the feed up and down, hammers the steel and coaxes things in various ways until the drill gets steadily running again. With the electric drill when the bit sticks the motor and the pulsator pistons do not stop, but keep running the same as before. This means that if the drill piston is making, say, 400 strokes a minute it will when it sticks receive per minute 400 alternate trusts and pulls with full force. Nothing can well be imagined more effective for freeing the bit, and often when it sticks before the runner can get ready to do anything about it the drill is running along again as if nothing had happened.

This Temple Ingersoll electric air drill is beyond the experimental stage. It has been tested continuously for three years in the most difficult rock drilling, mostly in Colorado, and testimony concerning it is entirely commendatory.

The builder of the drill, the Ingersoll-Rand Company of New York, is so assured of the certainties accompanying the drill that it has made elaborate and costly arrangements for its manufacture, providing jigs, gauges and special tools. It has manufactured a large number of the complete apparatus in advance, with more under way, also a full stock of duplicate parts. The repairs required for the electric air drill are said to be less rather than more than for the air or steam-driven drills.

An African Conveyor Installation.

The cyanide process whereby gold is primarily separated from loose sand and rocks consists of tanks for chemically treating the whole mined product and means whereby the residuum of sand and rocks is disposed of after chemical separation of the gold.

Where this process is carried on to the extent of hundreds of tons of material per day many tanks of great dimensions are required, combined with conveying machinery whereby the raw material is handled to the tanks and the residuum of sand and rocks is carried to waste places.

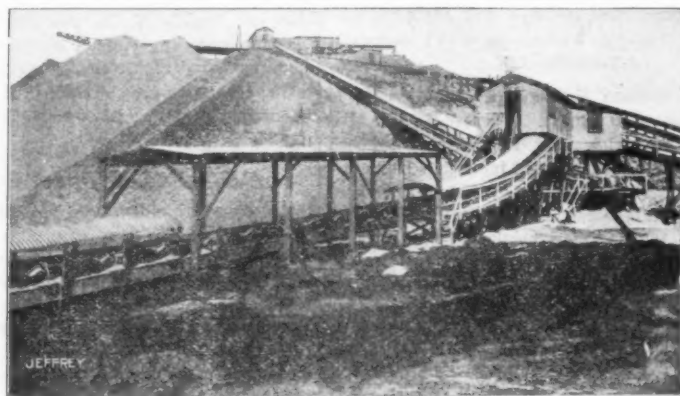
This applies particularly to the gold fields of South Africa, where the cyanide process is much used, and especially to the large plant recently built jointly for the Knights Deep Ltd. and Simmer & Jack East Ltd. companies.

In combining these two plants much rearrangement of old material and addition

motors. These conveyors distribute the material from tanks above to those below as material is ready to be treated.

Beneath each of the four rows of treatment tanks and directly under the four conveyors mentioned there are four 20-inch rubber belt conveyors, each 426 feet centers, running over three pulley troughing idlers, four feet centers. These conveyors are fed residuum of sand and work through a small opening in the center of the bottom of each tank and carry same to one end of the rows of tanks, delivering same to two cross-belt conveyors at right angles to ends of the first four conveyors. These cross conveyors face each other, the first carrying the refuse from the first and second of the tank conveyors to the head of the third tank conveyors, while the second cross conveyor takes the four tank conveyor material to the same point, thus concentrating all the refuse at one point. The refuse being thus collected from the treatment tanks at one point and on one level, it is then delivered to a 30-inch rubber belt conveyor, which in carrying the refuse on 310-foot centers elevates same 20 feet into a 50-horse-power motor-house at head of conveyor and at the foot or edge of dumping grounds, as shown in the accompanying illustration.

At this point the material is delivered to the eighth and longest belt of the system, a 30-inch six-ply three-sixteenths-inch rubber-covered Century belt, 430-foot centers, which carries the refuse to top of dump or refuse hill, as shown in illustration, a difference of elevation of 122 feet from the first four conveyors under tanks. Having reached the top of the refuse hill, the sand and rock are delivered to the ninth conveyor, of the same make as the incline conveyor, except that same is now but 125 feet on centers and is built on a horizontal portable wood frame, thus making it possible by the gradual shifting of this frame in the extension of the conveyor head from the incline conveyor, besides the moving of same in an almost complete circle about the head of incline conveyor, to gradually build a plateau out from the top of the original hill or pile. As the work of moving this portable conveyor is too cumbersome a work to perform daily, there is placed at the head of this last conveyor what is known as a distributing boom of two 36-inch belt conveyors, all self-contained within a portable steel frame or structure. The first of these conveyors is



AN AFRICAN CONVEYOR INSTALLATION.

of new conveyors was necessary. The conveyors were furnished by the Jeffrey Manufacturing Co., Columbus, Ohio.

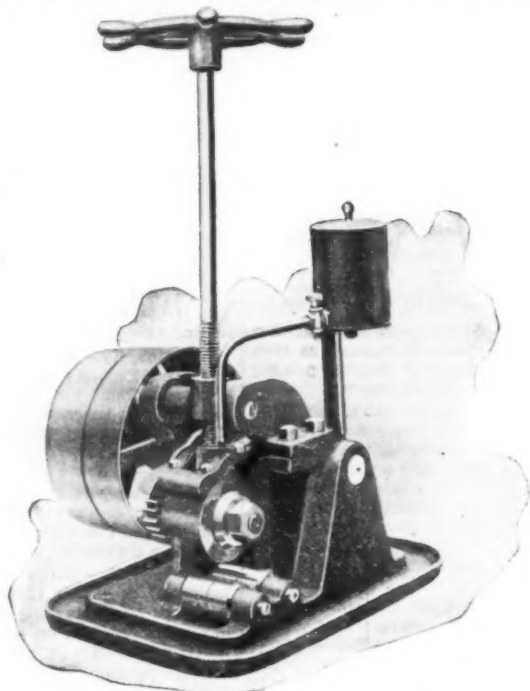
In the joint plant a space 170x470 feet is occupied by 40 tanks, each 40x9 feet, arranged in four rows of 10 tanks each, known as treatment tanks. Over these tanks are situated 16 similar tanks known as collecting tanks, which are placed concentric with treatment tanks numbers 4, 5, 6 and 7 of each row. Over the treatment tanks and below the collecting tanks there are four 20-inch rubber belt conveyors, one over each row, driven by separate

newly a 30-foot extension or advance of the last conveyor, shown in upper left-hand corner of illustration, while the second conveyor of the boom on 56-foot centers is placed in boom at right angles to and back of advance belt. This last boom conveyor is on rollers in the steel frame, so that same can distribute material 56 feet to either the right or left of structure, being fed through a three-way hopper capable of placing material to advance belt or to right or left on cross belt. In time it is intended to extend the ninth conveyor, feeding boom, from 125 to 450-foot centers.

Thus it can be seen that with the present dump conveyor system a plateau an eighth of a mile in diameter and 120 feet high may be built before it will become necessary to change the present system of conveyors leading to the top of the refuse hill.

A New Rolling Pipe Cutter.

The Bignall & Keeler Manufacturing Co. of Edwardsville, Ill., has recently



A NEW ROLLING PIPE CUTTER.

placed on the market an improved rolling pipe and tube cutter. The cutter shaft is driven direct from the driving shaft by means of cut gears. The cutter is raised or lowered by means of a screw working in a steel nut.

The rollers are of large diameter, which reduces the speed, and they are run on hardened steel pins.

from one-quarter to two inches, and B. & K. No. 2, cutting from one to four inches.

Electrical Equipment of Laundry.

Electricity has been used as the lighting and power agent in steam laundries for several years, but it has been within a comparatively short time that the cleanliness and convenience of this power has been adopted for heating. The Guthman Steam

this way the first and second stories, used for offices, ironing and drying, are kept entirely free from all odors of boiling clothes and soapsuds.

In the basement boiler-room are located two 200-horse-power water-tube boilers, which supply steam at both low and high pressures, respectively, for laundry purposes and for an automatic engine which drives a 55-kilowatt compound-wound 110-volt General Electric generator for supplying light and power. On the first floor, in addition to the general offices, are four large mangles, each driven by a five-horse-power direct-connected motor. Individual motor drives are also used on the shirt-bosom ironers, body ironers, wristband ironers, moisture-applying machines, etc. The primary washing machines on the third floor, as well as the centrifugals, are grouped and are driven from two lines of shafting, each belted to a 15-horse-power motor. Aside from the machine drives there is also installed an electric elevator, which carries the work from the delivery wagons in the basement to the sorting-room on the top floor.

It is in the hand-ironing department on the second floor, however, where the most interesting use of electricity is evident. Here are installed 30 six-pound and 10 three-pound electric flatirons of the cartridge type built by the General Electric Co. The method of installation is unusually neat, and emphasizes the convenience and adaptability of the electric flatiron. Over each ironing table, as shown by an accompanying illustration, there is a special goose-necked fixture fitted with a receptacle for the connecting plug of the flatiron and with a socket for a four-candle-power indicating lamp, both controlled by a 10-ampere snap switch. This novel arrangement tells at a glance which irons are doing useful work or which are standing idle with the current turned on. Moreover, this method of attachment allows the operator the greatest freedom in the use of the iron.

The electrical equipment of this laundry



ELECTRICAL EQUIPMENT IN STEAM LAUNDRY.

The cutter disc is made of the best tool steel, carefully tempered, and is stiffened by a pair of steel flanges.

Oil tank and pan are furnished, so that oil may be used if desired. The cutter is made in two sizes—B. & K. No. 1, cutting

usual. The basement contains the generating equipment, repair shop and store-rooms, while primary washing machines and centrifugals for extracting water from the clothes are located on the top floor, constructed of cement 14 inches thick. In

was installed by the General Electric Co. of Schenectady, N. Y., after plans of Geo. Wade as consulting engineer for the Guthman Company. It is said the Guthman laundry demonstrates that by the use of the electric irons 20 per cent. more work

can be accomplished by each operative per working day than that formerly done by the older methods.

Grammes Circular-Saw Vise.

Users of circular-saw vises and dealers in such tools are invited to note the three accompanying views of the Grammes circular-saw vise. This vice is made for all kinds of circular-saw and groover filing. It is iron and steel, rigid and adjustable; new in design and mechanical principles.



FIG. 1.—GRAMMES CIRCULAR-SAW VISE.

It can be swung on an axis to any point between 1 and 180 degrees; also can be swung on its base swivel to any point in a circle.

Its vertical position adapts it for straight teeth filing; its slanting position for bevel teeth. All adjusting features give light to the points being filed and



FIG. 2.—GRAMMES CIRCULAR-SAW VISE.

swing it into any position to suit the ease of the filer. The vice has no protruding levers or bolt heads or heavy jaws to obstruct the filer's stroke.

It holds saw or cutter firmly at points of collar or center as well as at teeth, instead of at collar or teeth only. This obviates that nerve-racking vibration, as well



FIG. 3.—GRAMMES CIRCULAR-SAW VISE.

as springing and dishing liabilities. The weight is 35 pounds.

In the illustrations Fig. 1 vise takes saws 4 to 9 inches in diameter; Fig. 2 takes saws 6 to 14½ inches in diameter, and Fig. 3 takes saws 12 to 20 inches in diameter. Messrs. L. F. Grammes & Sons of Allentown, Pa., manufacture the Grammes circular-saw vise. They want additional dealers to handle the tool.

A report of shipments of Peace River phosphate rock by the Peace River Phosphate Mining Co. through the port of Punta Gorda, Fla., during October shows that 2585 tons went to Philadelphia, Pa., and 1695 tons to Baltimore, Md., making a total of 4280 tons. Adding to this the amount previously reported, 36,662 tons, here is a total for 1906 of 40,942 tons.

The Board of Trade of Winston-Salem, N. C., is circulating a statement showing that between 1900 and 1905 the city increased its manufacturing capital from \$3,969,337 to \$9,211,802 and increased the value of its manufactured products from \$4,887,649 to \$11,353,296.

The fourth annual meeting of the American Portland Cement Association will be held in New York city Tuesday and Wednesday, December 11 and 12.

Construction Department

TO OUR READERS!

In order to understand and follow up properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY.

The MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

* Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the MANUFACTURERS' RECORD.

ADDRESS FULLY.

To insure prompt delivery of communications about items reported in these columns, the name of one or more incorporators of a newly incorporated enterprise should be shown on the letter addressed to that town, or to the town of the individual sought, as may be shown in the item, as sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. This will help to insure prompt delivery of your communication, although it is inevitable that some failures on the part of the postal authorities to deliver mail to new concerns will occur.

WRITE DIRECTLY.

It is suggested to advertisers and readers that in communicating with individuals and firms reported in these columns, a letter written specifically about the matter reported is likely to receive quicker and surer attention than a mere circular.

ALABAMA.

Birmingham, Ala.—Land Improvement.—Lennox Realty Co. has been incorporated with an authorized capital stock of \$25,000. J. W. Donnelly is president; F. J. Sheppard, vice president, and George A. Blinn, secretary.

Birmingham, Ala.—Land Improvement.—Pickens-Tharpe Realty Co. has been incorporated with \$5000 authorized capital stock by W. H. Tharpe, Flora Tharpe, Israel Pickens and Mary G. Pickens.

Crichton, Ala.—Sawmill.—James Cash and J. W. Cash of Mobile, Ala., are reported as completing arrangements for the erection of sawmill.

Ensley, Ala.—Laundry.—John H. Sheldon is erecting addition to laundry and will install new and additional equipment.

Mobile, Ala.—Electric-light Plant.—McCleary Company, Detroit, Mich., submitted the lowest bid at \$123,000 for the construction of proposed electric-light plant.

Mobile, Ala.—Dry docks.—Charles Ollinger and associates have purchased ground at Choctaw Point having a river frontage of 135 feet, and are arranging for the construction of a dry-docking plant with a capacity of 4000 tons dead weight. It is estimated that about \$175,000 will be invested.

Montgomery, Ala.—Trunk Factory.—E. L. Drain and F. B. Drain have formed the Montgomery Trunk Co. and established plant at 103 Bibb street for the manufacture of trunks; daily capacity 50 trunks. Electricity will be used as motive power.

Round Mountain, Ala.—Iron Furnace.—Round Mountain Iron & Wood Alcohol Co. will blow in its iron furnace, which has not been in operation for some time; annual capacity 6500 tons of iron. W. J. M. Gordon is president.

ARKANSAS.

Camden, Ark.—Wagon Material.—Racine (Wis.) General Manufacturing Co., which recently purchased the Brown and Thomson tracts of land, is completing arrangements

for the erection of plant in South Camden to manufacture wagon material of all kinds.*

Dermott, Ark.—Sewerage System.—City is reported as to construct sewerage system at a cost of \$15,000. Address The Mayor.

England, Ark.—Cotton Gin.—Incorporated: Beakley-Swain Ginning Co., with \$25,000 capital stock, by J. Swain, R. J. Lanford and R. R. Lyon.

Jonesboro, Ark.—Bakery.—L. Latourette has secured site on which to erect bakery.

Jonesboro, Ark.—Hub Factory.—Reported that G. M. Bosler of Indianapolis, Ind., is arranging to build a hub factory.

Little Rock, Ark.—Street Paving.—Joseph McCoppin has contract for paving Louisiana and Ashley streets at \$1.90 a square yard for paving and 40 cents a square yard for excavating.

Marked Tree, Ark.—Sawmill.—Chapman & Dewey Lumber Co., reported November 1 as to establish band-saw mill, will erect building 50x175 feet and equip for a daily capacity of 65,000 feet of hardwood lumber. T. G. Staton is engineer in charge.

Newport, Ark.—Hardwood Mill.—Fee-Crayton Hardwood Lumber Co. has been incorporated with \$150,000 capital stock for the establishment of mill manufacturing oak, hickory and other heavy woods. Frank F. Fee is president and manager, and E. W. Crayton, secretary-treasurer, both of Newark, Ohio. A steamboat and barge line will be incorporated in connection to bring the heavy woods to the mills. Fee-Crayton Company of Newark, Ohio, was mentioned October 11 as having purchased 15 acres of ground on which to locate hardwood mill.

Paris, Ark.—Coal Mines.—Reported that the Wichita Coal & Material Co. of Wichita, Kan., has purchased the Spot Cash coal mine near Paris and will arrange at once for its development, increasing the output.

Searcy, Ark.—Oil and Gas Wells, etc.—Leslie Oil & Gas Co. has been incorporated with \$1,000,000 capital stock by F. P. Greenhaw, R. F. Peters, William T. Mills, N. M. Bratton, J. R. Richey and J. W. Wilson to prospect for oil and gas in Searcy county and build pipe lines to several cities.

Sevier County, Ark.—Sawmill.—Brown-Henderson Timber & Improvement Co., Nashville, Ark., who recently purchased 4000 acres of timber land in Sevier county, has begun the erection of sawmill.

Texarkana, Ark.—Lumber Company.—Twin City Lumber Co. has increased capital stock from \$25,000 to \$100,000.

Walnut Ridge, Ark.—Wagon Material.—National Lumber Manufacturing Co. of Rock Island, Ill., is completing arrangements for the establishment of plant to manufacture wagon, carriage and car material; later it is proposed to install planing mill; capital stock \$10,000. S. Pearson is president; J. J. Moore, vice-president, and W. W. Harris, secretary-treasurer of the company.

Warren, Ark.—Land Improvement.—Southwestern Land Improvement Co. has been incorporated with \$100,000 capital stock by R. P. Barnes, E. J. Barker and J. M. Barker.

Wilton, Ark.—Grist Mill and Cotton Gin.—Wilton Union Mill & Gin Co. has been incorporated with \$10,000 capital stock by J. C. Johnston, Sterling Johnston, E. E. Johnston, R. M. Hardy, E. M. McCord and associates.

FLORIDA.

Bartow, Fla.—Machinery, Tools, etc.—Alfa-alfa Trading Co. has been incorporated with \$5000 capital stock to deal in machinery, tools, etc. E. C. Stuart is president and treasurer, and M. H. Williams, secretary.

Hampton, Fla.—Drug Factory.—Hampton Drug Co. has been incorporated with \$10,000 capital stock. A. A. McDonald is president; S. R. Johns, vice-president, both of Hampton, and J. M. Mitchell of Starke, Fla., secretary-treasurer.

Jacksonville, Fla.—Terminals.—D. M. Baker, P. O. Box 274, has contract for all grading and tracks at the new freight terminals of the Atlantic & East Coast Terminal Co. Contract for constructing steel span across Bay street and for two large freight warehouses 50x75 feet has not been let. J. W. Richardson is engineer in charge.

Kissimmee, Fla.—Concrete-block Factory.—J. M. Willson, Jr., is considering the establishment of plant to manufacture artificial stone.*

Ocala, Fla.—Naval Stores.—Central American Naval Stores Co. has been incorporated with \$1,000,000 capital stock. H. L. Anderson

is president; John S. Birdsey, vice-president, and H. M. Hampton, secretary-treasurer.*

Orlando, Fla.—Street Paving.—Warren Bros. of Tampa, Fla., are reported as having contract for doing a large amount of paving.

Pensacola, Fla.—Ice Plant.—Robert Gamble of Jacksonville, Fla., is reported as investigating with a view to establishing ice plant.

Vereen, Fla.—Timber Land.—Reported that J. L. Phillips & Co. of Thomasville, Ga., have purchased 29,000 acres of timber land in this vicinity, including a sawmill with a daily capacity of 40,000 feet. It is stated that the company recently purchased 70,000 acres of timber land adjacent to present purchase.

West Palm Beach, Fla.—Hardware.—Hatchett-Da-Camara Hardware Co. will amend charter, changing name to the Lake Worth Mercantile Co. and increasing capital stock from \$35,000 to \$100,000.

GEORGIA.

Atlanta, Ga.—Printery.—Press Huddleston and Claud Christian will organize as Huddleston & Christian and establish printing plant at 21 South Forsyth street.

Atlanta, Ga.—Concrete-block and Brick Works.—Atlanta Land Improvement Co., recently incorporated with an authorized capital stock of \$50,000, will manufacture concrete block and brick, purchase land and erect concrete-block buildings thereon; daily capacity 2000 blocks. Two buildings 50x100 feet of concrete blocks will be erected. H. T. Rawlins is treasurer; office, 405 Century Building.*

Atlanta, Ga.—Publishing.—Evans Printing Co. is the title of company reported last week as being organized with Sidney C. Tapp, president and editor, and Charles H. Evans, business manager, for the publication of a magazine; capital stock \$10,000, with privilege of increasing to \$50,000; plant at 122 Decatur street; office, 514 Austell Building.

Brunswick, Ga.—Cannery.—Glynn Canning Co. has been organized to establish cannery.

Clito, Ga.—Naval Stores.—J. A. McDougald Company of Statesboro, Ga., has purchased at \$11,000 the naval-stores business of F. P. Register. It is stated that the plant will be enlarged and improved.

Columbus, Ga.—Electric-power Plant.—The Eagle and Phenix Mills is considering the installation of equipment for driving its plant partially by electricity. This is to relieve the present rope drive to some extent, but not to supplant it entirely. Details have not been decided.

Elberton, Ga.—Granite Quarry.—Swift Granite Co. has purchased four acres of land containing granite; also the lease of 58 acres held by the Elberton Granite Co., and will arrange at once for quarrying the stone.

Lagrange, Ga.—Hardware.—Incorporated: Hudson-Broome Hardware Co., with \$10,000 capital stock, by James A. Broome, J. C. D. Hudson, A. W. Wheless and J. D. Hudson.

Pelham, Ga.—Water-works, Electric-light and Ice Plant.—Town will expend \$40,000 in municipal improvements, consisting of water-works, electric lights and ice plant, and engineers are invited to submit propositions. H. H. Merry is Mayor.

Pineora, Ga.—Lumber Company.—Chartered: Carleton Lumber Co., by Dennis H. Dixon, Joseph A. Walker and Wm. L. Gignilliat.

Quitman, Ga.—Lumber Company.—Georgia Pine Co. has been incorporated with \$25,000 capital stock by J. W. Spain, Frank Spain and H. W. Stubbs.

Rome, Ga.—Textile Manufacturing, etc.—J. L. Johnson, A. E. Johnson, J. G. Johnson and others have incorporated the Concord Manufacturing Co. with capital stock of \$100,000 for manufacturing textile goods, flour, meal, etc.

Savannah, Ga.—Naval Stores.—American Naval Stores Co. has been incorporated with \$1,500,000 capital stock by Albert R. Elmendorf, Spencer S. Thomas, Morris F. Knudson, George Bringolf of New York, N. Y., and Robert Campbell of Newark, N. J.

Savannah, Ga.—Lumber Plant.—Georgia-Carolina Lumber Co., reported incorporated last week with \$100,000 capital stock and privilege of increasing to \$1,000,000 for the development of timber land recently purchased near Savannah, has completed organization with E. L. Bullock of Audenried, Pa., president; A. W. Sheaffer, vice-president; G. G. Barr, secretary; W. L. Sheaffer, treasurer, and J. W. Beecher, general manager, all of Pottsville, Pa. Size and charac-

ter of buildings to be erected have not been decided; main office, Pottsville, Pa.

KENTUCKY.

Barboursville, Ky.—Oil Wells.—David Main has acquired the holdings of the National Oil & Development Co. of Chicago, Ill., in Knox county and will drill new wells.

Butler County, Ky.—Oil Wells.—Green River Oil & Development Co. has been organized with \$50,000 capital stock to drill for oil in Butler county; office, Morgantown, Ky.

Carrollton, Ky.—Electric-light Plant and Water-works.—City has voted affirmatively the proposed \$25,000 bond issue for the purchase and enlargement of electric-light plant and improvement of water-works. W. F. Schuerman is Mayor.

Carter County, Ky.—Diamond Mines.—Kentucky Transvaal Diamond Mining Co. has been organized by Samuel Pearson of Scranton, Pa., and W. J. Rice of San Jumin, P. R., with \$100,000 capital stock to operate in Carter and Elliott counties.

Cynthiana, Ky.—Hemp and Fiber Breaking Machines.—Kentucky Hemp Break Co. has been incorporated with \$5000 capital stock by John W. Poindexter, S. Renaker and R. C. Hall to manufacture hemp and fiber breaking machines.

Georgetown, Ky.—Wax Plant.—Indian Refining Co. is reported as to erect wax plant with a daily capacity of 400 barrels of wax, to be operated in connection with refinery located on Elkhorn creek.

Lexington, Ky.—Wagon Material.—Reported that E. S. Morris, 1125 Chambers street, St. Louis, Mo., is investigating with a view to establishing plant for the manufacture of thimbles and skains for wagons.

Louisville, Ky.—Cement Plant.—Chartered: Hidalgo Cement Co., with \$30,000 capital stock, by J. B. Speed, Attila Cox, Harry Weissinger, George Gault, W. S. Speed and F. M. Sackett.

Louisville, Ky.—Steel Viaduct.—Louisville & Jeffersonville Bridge Co., which is owned by the Cleveland, Cincinnati, Chicago & St. Louis Railway and the Chesapeake & Ohio Railway, is reported as arranging to build a steel viaduct to connect the Kentucky end of bridge with surface tracks of the Louisville & Nashville Railroad; to be 1100 feet long and cost \$75,000. W. M. Duane, chief engineer Cleveland, Cincinnati, Chicago & St. Louis Railway, Cincinnati, Ohio, is said to be in charge.

Louisville, Ky.—Brick Plant.—Globe Mining & Development Co. will establish a paving and fire-brick plant; daily capacity 100,000 bricks. E. A. Hall, 1012 East Main street, is treasurer.

Olive Hill, Ky.—Feed M.L.—Olive Hill Milling Co. has been incorporated with \$3000 capital stock to manufacture all kinds of feed-stuffs. A two-story building 24x100 feet will be erected. Claude L. Wilson is president; J. E. Wallace, vice-president, and G. L. Braumer, secretary-treasurer and engineer in charge.

Owensboro, Ky.—Candy Company.—Vick Miller Candy Co. has increased capital stock from \$5000 to \$10,000.

Owensboro, Ky.—Land Improvement.—J. Ed Guenther, E. W. Smith, James H. Parrish, J. W. Smith, J. A. Harris, H. K. Cole and others have incorporated the B. M. A. Realty Co. with \$10,000 capital stock.

Paducah, Ky.—Implements and Machinery.—Chartered: J. R. Province & Son with \$10,000 capital stock by J. R. Province, Paul W. Province and T. L. Crice to deal in implements and machinery.

LOUISIANA.

Alexandria, La.—Drainage Canals.—At a meeting of the Red River, Atchafalaya and Bayou Boeuf Levee Board it was decided to enlarge the present drainage system from Bayou Jack in Avoyelles parish and extend 37 miles to Bayou Courtableau in St. Landry parish, to cost about \$150,000. It is reported that bids for the work will be invited, to be opened November 23.

Greens, La.—Sugar Plantation, etc.—C. R. Ash of Duluth, Minn., has purchased at \$500,000 the sugar-plantation holdings in Lafourche parish of John R. Gheens, operating as the Golden Ranch Sugar & Cattle Co. The deal includes 24,000 acres of land, 3500 acres of which is under cultivation; a modern sugar-house, etc. The timber land has been disposed of by Mr. Ash to R. H. Downman at \$22,000, and it will be operated by the Bowie Lumber Co.

Johnsons Bayou, La.—Sulphur Mines.—Reported that E. B. Mentz of Houston, Texas, together with Houston (Texas) and Boston (Mass.) capitalists, will arrange for the development of 32,000 acres of land containing sulphur.

New Orleans, La.—Water Mains.—Contract will shortly be let for 100 miles of water mains to be installed in the business district. Address Chairman Johnson of the executive committee of the Sewerage and Water Board.

New Orleans, La.—Olecake-sacking Plant.—Chas. L. Smith & Co., Ltd., reported incorporated November 1, will build an olecake-sacking plant. All equipment has been purchased. A covered shed 32x269 feet and boiler-house will be erected. About \$8000 will be invested. Chas. L. Smith is general manager; office, Hibernia Bank Building.

New Orleans, La.—Turpentine and Tar Company.—American Turpentine & Tar Co. has been incorporated with \$500,000 capital stock. Chas. E. Merriwether is secretary-treasurer and Geo. O. Gilmer director and manager.

New Orleans, La.—Turpentine Timber.—Long-Bell Lumber Co., recently reported incorporated under Kansas City, Mo., will turpentine timber in Louisiana. W. B. Gillman, New Orleans, is general manager; main office, Kansas City, Mo.

New Orleans, La.—Navigation Company.—Tchoufouca River Navigation Co. has been organized with \$30,000 capital stock to operate passenger and freight boats on Lake Pontchartrain. A. P. J. Segassie is president; Clay Riggs, vice-president; Albert Wener, secretary-treasurer.

New Orleans, La.—Paper-box Factory.—Reported that Ringley & Levy, paper-box manufacturers, have purchased the plant formerly owned by the W. H. Haller Manufacturing Co., which will be enlarged, increasing the present capacity.

New Orleans, La.—Lumber Company.—Schaefer-Elms Lumber Co., Ltd., has been incorporated with \$25,000 capital stock. Christopher Schaefer is president and treasurer; Charles S. Elms, vice-president, and Edward Aaron, secretary.

New Orleans, La.—Cold storage Plant.—Columbia Brewing Co. will erect a three-story brick addition, equipping as cold-storage plant. About \$20,000 will be invested. Anton Schellenkaup is engineer in charge. No equipment needed; office, 529 Elysian Fields street.

Rayne, La.—Street Paving.—Contract will be let November 22 for constructing cement sidewalks and brick curbing. O. Broussard is mayor.

Richland Parish, La.—Stave Mill.—Reported that the Marshfield Stave & Timber Co. of Marshfield, Wis., recently organized by Edward N. Dufour and associates, has acquired 1618 acres of timber land in Richland parish, which will be developed. Arrangements will be made at once for the erection of stave mill.

Shiloh, La.—Cotton Gin.—Incorporated: Union Gin Co., Ltd., with \$5000 capital stock. J. A. Wainwright is president; J. E. Buckley, vice-president, and J. M. Winn, secretary.

MARYLAND.

Annapolis, Md.—Bridge Construction.—Anne Arundel County Commissioners will let contract November 13 for the construction of a reinforced-concrete or steel bridge at Severn run; for a wooden, steel or concrete bridge at present site of Bowie Bridge near Annapolis Junction, and for a wooden-pile bridge at Tracey's Landing; W. W. Webb, clerk.

Baltimore, Md.—Fertilizer Plant.—The Home Fertilizer Chemical Co., 505 Maryland Trust Building, Calvert and German streets, has been incorporated with capital of \$40,000 by Thomas J. Boykin, Herbert B. Stimpson, Henry L. Taylor, Wm. P. Crenshaw and Thomas W. Boykin. This company takes over the business of the Home Fertilizer Chemical Works.

Baltimore, Md.—Sewerage System.—M. A. Talbott Company, contractors, 415 American Building, Baltimore and South streets, were the lowest bidders for the construction of about two miles of 12-foot in diameter concrete sewers, being the main outfall sewer of the new sewerage system; approximate cost about \$300,000; work to be completed in 350 days; Calvin W. Hendrick, chief engineer Sewerage Commission, 904 American Building.

Baltimore, Md.—Pumping Plant.—The Board of Awards, City Hall, will receive bids until November 28 for furnishing mechanical equipment for sewerage-system pumping plant. This consists of three 27,500-gallon capacity pumps with necessary equipment, including boilers, etc. Plans and specifications may be obtained from Sewerage Com-

mission, Calvin W. Hendrick, chief engineer, 904 American Building, Baltimore and South streets, on and after November 17.*

Baltimore, Md.—Bakery.—The Maryland Blacuit Co., M. J. Fitzsimmons, general manager, 516-532 South Charles street, has commissioned Simonson & Pietsch, architects, American Building, Baltimore and South streets, to prepare plans and specifications for addition to its bakery; six stories, 62x165 feet; fireproof construction; interior walls of tile. Estimates on construction will soon be taken.

Baltimore, Md.—Printing and Publishing Plant.—The Journal Company, proprietors of the Baltimore Journal, 1011-1013 East Baltimore street, have purchased lot at 413 East Fayette street and will erect printing plant on the site; three stories and basement, 18x95 feet; brick with stone trimmings; fireproof construction.

Baltimore, Md.—Real Estate.—The Chestnut Hill Real Estate Co. has been incorporated with capital stock of \$100,000 by Randolph M. Dane, Central Savings Bank Building, 3 East Lexington street; Isaac S. White, 2213 Oak street, and Wm. G. Stone, 2021 North Charles street.

Baltimore, Md.—Platinum Plant.—The Baltimore Platin Co. has been incorporated with capital of \$500,000 to manufacture a substitute for platinum by Robert Graf, 1623 North Wolfe street; G. Jacob Bell and Paul R. Buttner.

Centerville, Md.—Electric-light and Power Plant.—Centerville Light, Heat & Power Co. has been organized with W. J. Peall, president and manager; Walter T. Wright, vice-president; J. Fletcher Rolph, secretary, and Pere T. Forman, treasurer, to operate plant furnishing light, heat and power. A building 30x75 feet will be erected and equipped for a capacity of 2-40 kilowatts. About \$25,000 will be invested in building and equipment; no equipment needed. Address P. O. Box 301. (W. J. Peall was reported October 25 as securing franchise to establish electric-light and power plant.)

Hagerstown, Md.—Gas Plant.—A meeting of the stockholders of the Hagerstown Gas Co. will be held November 26 to consider increasing capital stock to \$300,000 for the purpose of enlarging and improving plant. It is proposed to build a new gasholder, install new purifiers and extend gas pipes to the new additions of the city.

Oldtown, Md.—Lumber Plant.—Kulp Lumber Co. (main office, Cumberland, Md.), owning 18,000 acres of timber land in Allegany county, is installing lumber plant for its development.

MISSISSIPPI.

Brandon, Miss.—Water-works.—City has voted affirmatively the proposed \$25,000 bond issue for constructing water-works. Kirkpatrick & Johnson, Jackson, Miss., were reported October 18 as making preliminary surveys.

Brookhaven, Miss.—Woodworking Plant and Ice Factory.—Central Lumber Co. is being organized by A. E. Moreton, S. E. Moreton, W. H. Seavey and John E. Seavey to manufacture sash, doors and blinds, operate ice plant, etc.

Columbus, Miss.—Timber Land.—Interstate Lumber Co., A. E. Swanson, secretary-treasurer, Curtiston, Ala., has acquired some 15,000 acres of timber land near Columbus, but no arrangements have been made as yet for its development. (Referred to November 1.)

Corinth, Miss.—Cotton Mill.—W. C. Frost of Athens, Ala., is organizing company with capital stock of \$100,000 to build a cotton-yarn mill of 5000 spindles at Corinth. No machinery has been purchased.*

Shubuta, Miss.—Lumber Plant, etc.—John A. Cox Lumber Co. of Vincennes, Ind., has purchased the plant and property of the Kaupp Lumber Co., including sawmill, Shubuta & Southwestern Railroad, light and water plant, and will continue operating as the Kaupp Lumber Co. The capital stock will be increased to \$250,000.

MISSOURI.

Carthage, Mo.—Office Supplies.—Chartered: Ero Office Supply Co. with \$5000 capital stock by S. J. Barber, R. E. St. Clair and D. H. Harris.

Duenweg, Mo.—Iron Mines.—Thomas C. Mining Co. of Joplin, Mo., has begun the development of iron mines in Jasper county. John Malang of Joplin is supervising the development work.

Joplin, Mo.—Prospecting Company.—Chartered: Four Hundred Prospecting Co., with \$100,000 capital stock, by Delmar C. Wise, Arthur F. Bendelari, Julius C. Miller and others.

Joplin, Mo.—Lead and Zinc Mines.—Whitsett Mining Co., reported incorporated November 1 with \$80,000 capital stock, will operate lead and zinc mines and 300-ton mill. Plant has been erected. No equipment will be purchased; office, 315 Miners' Bank Building.

Joplin, Mo.—Mining.—Blue Stem Mining Co. has been incorporated with \$30,000 capital stock by D. C. Deckendorf, C. M. Spring, Charles E. Edwards and others.

Joplin, Mo.—Mining Company.—A. E. Bendelari, F. S. Cook, H. C. Shaw and others have incorporated the Meark-Nemo Consolidated Mining Co. with \$200,000 capital stock.

Kansas City, Mo.—Foundry.—Incorporated: Sheffield Foundry Co. with \$20,000 capital stock by John W. Klipp, John W. Bartow and Henry S. Bachelor.

Kansas City, Mo.—Ice Plant, etc.—Mutual Ice & Fuel Co. has been incorporated with \$50,000 capital stock by M. C. Reefer, Fred Wolferman, Louis Wolferman, J. S. Chick, Sr., J. S. Chick, Jr., Dr. B. A. Lieberman, O. T. Street and James O'Neill of Webb City, Mo. As soon as site is secured a 50-ton ice plant will be built at Westport.

Kansas City, Mo.—Light and Heating Apparatus.—Kansas City Gas Appliance Heating & Lighting Co. has been organized with J. B. Taggart and William Walker to deal in light and heating supplies.

Kansas City, Mo.—Lumber Company.—J. K. Grandin, E. B. Grandin, O. W. Fisher and others have incorporated the Grandin Coast Lumber Co. with \$1,000,000 capital stock.

Kansas City, Mo.—Bridge.—Ira J. Hedrick, consulting engineer, has prepared plans for bridge reported August 30 to be constructed by the Kansas City, St. Joseph & Excelsior Springs Railway Co. over the Missouri river at the foot of Walnut street. It will be a combined railroad and highway bridge, be double-tracked for both railroad and motor traffic, and provide two separate roadways for vehicles; cost \$1,100,000.

Kansas City, Mo.—Chartered: Locomotive Finishing Material Co., with \$25,000 capital stock, by John Seaton, Olive Hastings, Harry Munish and others.

Rolla, Mo.—Water-works and Sewerage System.—City has voted affirmatively the issuance of bonds for constructing water-works and sewerage system referred to October 11. Bonds were previously voted for this purpose, but owing to an error an election was again called. F. J. Koch is Mayor.

St. Louis, Mo.—Packing Plant.—Cox & Gordon Packing Co. has been incorporated with \$300,000 capital stock by Charles A. Cox, Samuel Gordon and Whitman B. Daniels.

St. Louis, Mo.—Brush and Broom Factory, Incorporated: Lay-Kenney Manufacturing Co., with \$10,000 capital stock, by Frank R. Lay, J. B. Kenney and Fred P. Flake.

St. Louis, Mo.—Electrical Machinery.—Emerson Electric Manufacturing Co., 21st street and Washington avenue, will hold a meeting January 7, 1907, to consider increasing capital stock from \$300,000 to \$500,000.

St. Louis, Mo.—Foundry.—A. Kilpatrick Sons Foundry Co. has increased capital stock from \$10,000 to \$50,000.

St. Louis, Mo.—Laundry.—Martin-Holloran-Klaus Laundry Co. has been incorporated with \$30,000 capital stock by Joseph V. Martin, Patrick J. Holloran and William F. Klaus.

St. Louis, Mo.—Box Factory.—Woods & Down Box Co. has been incorporated with \$25,000 capital stock by Wm. Woods, George L. Down, Susan K. Down and others.

St. Louis, Mo.—Cabinet Factory.—Incorporated: Splier & Dierkes Cabinet Manufacturing Co., with \$10,000 capital stock, by Charles Splier, Robert H. Dierkes, Anton Nolthey and others, to manufacture cabinets and furniture.

St. Louis, Mo.—Printery.—Incorporated: St. Louis Law Printing Co., with \$5000 capital stock, by William Croissant and Offa C. Severing.

Webster Groves, Mo.—Land Improvement.—Lee Sale of St. Louis, Mo., has purchased additional land near Webster Groves embracing 10.317 front feet, and will improve same as suburban residence section, building grand-toid walks, sewer, water, gas, etc.

NORTH CAROLINA.

Altapass, N. C.—Timber and Mineral Lands. J. B. Jackson of Altapass, John Ingles of Radford, Va., and Lawrence B. McCabe of Baltimore, Md., have incorporated the McCabe Company with \$200,000 authorized capital stock to develop timber and mining properties.

Asheville, N. C.—Crematory.—City will vote December 6 on the issuance of \$10,700 of bonds for the erection of crematory. A. S. Barnard is Mayor.

Bessemer City, N. C.—Sash and Door Factory.—George Bros. and Sidney Smith, it is reported, will establish sash and door factory.

Black Mountain, N. C.—Land Improvement. J. W. McKay of Black Mountain, J. D. Murphy, F. R. Grant and J. D. Penland of Asheville, N. C., have incorporated the Black Mountain Realty Improvement Co. with \$500,000 capital stock.

Charlotte, N. C.—Textile Machinery.—Southern Textile Machine Co. has been incorporated with an authorized capital stock of \$100,000 by L. L. Caudle, F. Marion Redd and T. C. Guthrie to deal in and manufacture textile machinery.

Charlotte, N. C.—Brick Plant.—J. W. Haas has contract to erect building for brick plant for the Carson Brick Co., referred to October 25; buildings to include boiler-house, engine-house and fanhouse, 16x30 feet, 20x52 feet and 29x52 feet, respectively; a brick machinery house of wood 35x40 feet and kiln 40x300 feet. All equipment has been purchased.

Charlotte, N. C.—Concrete Machinery.—Southern Concrete Machinery Co. is being organized with \$100,000 capital stock to take over the patents of J. C. Herron, who has invented a machine for making concrete blocks and roofing tile. Later it is proposed to form an independent company to manufacture building blocks and roofing tile.

Granite Falls, N. C.—Cotton Mill.—Incorporated: Dudley Shoals Cotton Mills Co., with capital stock of \$100,000, by D. A. Whisnant, D. H. Warlick and associates. These incorporators compose the Dudley Lumber Co., which was mentioned in June as intending to build in 1907 a 5000-spindle mill for manufacturing No. 50 yarns. Electricity developed from water-power will be used for driving the machinery.

Granite Falls, N. C.—Lumber Company.—Dudley Lumber Co. has been incorporated with \$15,000 capital stock by D. A. Whisnant, D. H. Warlick and others.

High Point, N. C.—Chair Factory.—Ford-Johnson Company of Frankfort, Ky., will establish chair factory, removing same from Frankfort.

Manteo, N. C.—Cannery, etc.—Chartered: Columbia Fish & Canning Co., with \$50,000 authorized capital stock, by J. W. Farman and others.

Manteo, N. C.—Telephone System.—D. O. Newberry of Columbia, N. C., operating telephone lines in Tyrrell and Washington counties, has been granted the privilege of constructing lines in Dare county.

Mebane, N. C.—Chair Factory.—Continental Chair Co. will rebuild chair factory reported burned last week, but location has not been decided on, the company contemplating to establish plant in another section, preferably an oak-timbered country. It is proposed to invest about \$40,000.

Monroe, N. C.—Sawmills, etc.—Helms-Kezian Company has been chartered with \$20,000 capital stock by J. W. Kezian and others to operate sawmills, deal in lumber, etc.

Roanoke Rapids, N. C.—Cotton Mill.—Roanoke Mills Co. has appointed a committee to investigate the advisability of increasing the mill's capacity by 50 per cent.; present equipment 15,304 spindles and 600 looms.

Rockingham, N. C.—Lumber Company.—Incorporated: Dockery Lumber Co., with \$25,000 authorized capital stock, by H. C. Dockery, J. C. Dockery and J. M. Dockery.

Rosemary, N. C.—Land Improvement.—Transylvania Company has been chartered with \$20,000 capital stock by E. E. Bowen and others.

Sanford, N. C.—Electric-light and Power Plant.—Sanford Electric Light & Power Co., W. H. Thomson, manager, will rebuild electric-light and power plant reported burned November 1. Size and character of buildings or machinery to be installed has not been decided on.*

Washington, N. C.—Farming Implements.—Chartered: Dixie Agricultural Co. with \$50,000 capital stock by W. P. Raughman, J. B. Fishbell and others to manufacture and sell all kinds of farming implements.

Wilmington, N. C.—Lumber Plant, etc.—S. & W. H. Northrop Lumber Co., Inc., has been chartered with \$25,000 capital stock to engage in a general domestic and export lumber business, deal in timber and timber lands and continue the operation of the sawmills, yards and wharves of S. & W. H. Northrop. Jas. L. Robertson is vice-president and treasurer; Samuel Northrop, general manager; operating office, Curry and Queen streets, Wilmington; financial office, 320 South 9th street, Richmond, Va.

SOUTH CAROLINA.

Batesburg, S. C.—Ice Plant.—W. H. McPhail is reported to establish a 10-ton ice factory.

Blacksburg, S. C.—Water-power-Electrical Plant.—Southern Power Co. of Charlotte, N. C., has plans for the development of water-power at Ninety-Nine Islands, on the Broad river, six miles from Blacksburg, and at Rocky creek, two miles below the Great Falls Station on the Catawba river, which development has begun. The development at the Ninety-Nine Islands, it is stated, will produce 16,000 horse-power, while the Rocky creek development will produce 30,000 horse-power. It is estimated that the total cost of the two developments will approximate \$3,000,000. Company was reported November 1 as increasing capital stock from \$7,500,000 to \$10,000,000.

Carlisle, S. C.—Cotton Gin.—Farmers' Ginnery Co. has been incorporated with \$4000 capital stock by C. A. Jeter, P. H. Jeter, M. C. Deaver and W. H. Gist.

Charleston, S. C.—Engineers and Contractors.—Simons-Mayrant Company will hold a meeting November 27 at 16 Broad street to consider increasing capital stock from \$25,000 to \$40,000.

Columbia, S. C.—Automobile Repair Shop.—E. A. Jenkins Motor Co. has been incorporated with \$5000 capital stock. T. B. Jenkins is president, and E. A. Jenkins, manager and secretary-treasurer; office, 1216 Main street.*

Columbia, S. C.—Drug Company.—Waverly Drug Co. has been incorporated with \$1000 capital stock by Drs. W. H. Champa and O. F. Hart.

Spartanburg, S. C.—Cement-block Factory. J. T. Harris is installing additional machinery and increasing the capacity of cement-block plant.

Spartanburg, S. C.—Knitting Mill.—Crescent Manufacturing Co., referred to last week, will add from 15 to 25 knitting machines and three to five looping machines. Contract for the machinery will probably be awarded during November.

Woodruff, S. C.—Cotton Mill.—It is stated that W. S. Gray, recently mentioned in connection with a proposed cotton mill, will organize a company with capital stock of \$300,000. Site for plant has been purchased.

TENNESSEE.

Ashwood, Tenn.—Phosphate Mines.—Maury County Blue Phosphate Co. has increased capital stock from \$125,000 to \$250,000.

Bristol, Tenn.—Drug Company.—Incorporated: Masengill Bros. Company, with \$50,000 capital stock, by Samuel E. Masengill, A. C. Keebler, M. L. Fowler and J. M. Barker.

Bristol, Tenn.—Concrete-block Machinery.—Luke Lowe Concrete Machine Co. has been organized with \$30,000 capital stock for the manufacture of machine for moulding concrete blocks patented by Luke T. Lowe; incorporators, Luke T. Lowe, N. D. Bachman, Sr., E. K. Bachman, Dr. H. F. Henderson and W. J. Bachman.

Chattanooga, Tenn.—Steam Laundry.—Chattanooga Steam Laundry Co. is having plans prepared by Bearden & Foreman for proposed building; four stories, 75x124 feet; cost \$20,000; office, 101-103-105 East Montgomery avenue.*

Clarksville, Tenn.—Land Improvement.—Clarksville Realty Co. has been incorporated with \$50,000 capital stock by Guy R. Johnson, M. A. Stratton, W. B. Young, Sterling Fort and D. Judah. Earle M. Cary will act as secretary-treasurer temporarily.

Cumberland County, Tenn.—Land Development.—Newman Land & Coal Co. has been organized with \$500,000 capital stock for the development of 51,000 acres of land in Cumberland and White counties. James J. Butler of St. Louis, Mo., is president; Lawrence Jacobs of New York, N. Y., vice-president, and J. H. Whallen of Louisville, Ky., treasurer.

Gleason, Tenn.—Electric-light Plant.—City is reported as considering the installation of electric-light plant. Address The Mayor.

Greenville, Tenn.—Telephone System.—Cumberland Telephone & Telegraph Co. is reported to make improvements to telephone system and remodel exchange building. Address Manager Hume, Nashville, Tenn.

Jackson, Tenn.—Concrete-block and Marble Works.—Concrete Building & Paving Co. has amended charter, changing name to the Jackson Marble & Concrete Co. and increasing capital stock from \$15,000 to \$30,000. It is proposed to engage in the marble, granite and stone business in addition to concrete. Walter Brown is president; J. O. Walker, vice-president; H. C. Jameson, secretary, and Charles L. McNutt, manager.

Jackson, Tenn.—Furniture Factory.—Budde-Lindsey Manufacturing Co. has been incorporated with \$30,000 capital stock by T. E. Lindsey, Ralph Budde, J. L. Wisdom, W. T. Harris, J. E. Edenton and G. H. Robertson to manufacture bank and store fixtures,

church and school furniture. A two-story brick building 70x100 feet will be erected.

Knoxville, Tenn.—Hardwood Fixtures.—Knoxville Hardwood Fixture Co. has been incorporated with \$10,000 capital stock by Noble Smithson, Guy Smithson, John Culver, T. B. Henley and J. J. Henley.

Knoxville, Tenn.—Railway Shops.—Reported that Borches, Wahrep & Co. have contract to make additions to seven buildings at the Coster shops for the Southern Railway amounting to \$300,000.

Livingston, Tenn.—Timber Land.—Reported that the Hanks-Speck Lumber Co. has purchased 400 acres of timber land in Overton county at \$50,000.

Memphis, Tenn.—Land Improvement.—Incorporated: Riverside Park Subdivision Co., with \$44,000 capital stock, by W. M. Carson, S. W. Moore, Jr., H. E. Craft, W. F. Shaw and R. M. Neale.

Memphis, Tenn.—Cotton Mill.—A. L. Gardner, I. N. Rainey, W. H. Carroll and others have incorporated Memphis Cotton Waste Co. with capital stock of \$50,000 for manufacturing cotton rope and bags from waste cotton.

Memphis, Tenn.—Lumber Company.—Stone & Heyser Lumber Co. has been incorporated with T. B. Stone of Cincinnati, Ohio, president; W. E. Heyser, vice-president and general manager, and W. W. Stone, secretary-treasurer.

Nashville, Tenn.—Cleaning and Dyeing Plant.—Incorporated: American Dry Cleaning Co., with \$5000 capital stock, by T. S. Morse, Max Firestone, A. T. Armstrong, S. M. Berger and Ed. F. Jared, continuing an established business. It is proposed to establish a dyeing plant on Sixth avenue.

Nashville, Tenn.—Street Improvements.—City is reported to issue \$150,000 of bonds for extending Commerce street. Address W. W. Southgate, City Engineer.

Nashville, Tenn.—Extract Factory.—Regis Manufacturing Co. has been incorporated with \$10,000 capital stock by R. M. Dudley, R. H. Dudley, Jr., J. B. Martin, E. R. Odle and others.

Wayne County, Tenn.—Timber Land.—Reported that O. G. Fitzpatrick of Stanton, Tenn., and F. M. Hara, president Canada Wheel Works, Meriton, Canada, have purchased 10,000 acres of hickory timber in Wayne county and will arrange at once for cutting same.

TEXAS.

Algon, Texas.—Cotton Mill.—Sam Lazarus of Houston, Texas, is planning the organization of company to build a large cotton mill at Algon.

Angleton, Texas.—Rice Canal.—A company is being organized with \$300,000 capital stock by F. Oberhelman, W. C. Stockman of Angleton, Frederick H. Porter of Dallas, Texas, and associates for the purpose of irrigating 300,000 acres of rice land. Arrangements will be made at once for the construction of a canal three miles long for irrigating 25,000 acres.

Ballinger, Texas.—Ice Plant.—W. J. Miller and George Vaughn contemplate establishing ice plant.

Beaumont, Texas.—Oil Wells.—Poverty Oil Co., reported incorporated November 1 with \$10,000 capital stock, will drill for oil; daily capacity 70 barrels crude petroleum. Tool and boiler-house, tanks, etc., will be erected. Stuart R. Smith is president.

Beaumont, Texas.—Rice Mill.—Lane Rice Co. has been incorporated with \$10,000 capital stock by E. C. Setliff, Sanders Coffey, J. V. Fleming and Felix Lane.

Brownlee, Texas.—Sawmills.—Reported that the receivers of the Kirby Lumber Co. have been granted permission to build two sawmills in Jasper county, one at Brownlee and one on the Nona Mills tract, developing property in Jasper and Angelina counties. The plant to be located on the Nona Mills tract, it is stated, will cost about \$50,000. C. P. Myer, Houston, Texas, is manager of mills.

Brownwood, Texas.—Printery.—Incorporated: News Printing Co., with \$10,000 capital stock, by T. C. Yantis, J. D. Carr, Will P. Wise, Ralph T. Wise and others.

Brownsville, Texas.—Nursery.—Incorporated: Rio Grande Nursery Co., with \$10,000 capital stock, by J. G. Fernandez, Parke R. Longworth, Arthur A. Parkhurst and associates.

Brownsville, Texas.—Water-works and Electric-light Plant.—Owen Ford, Security Building, St. Louis, Mo., is consulting engineer for the Brownsville Water, Light & Power Co., recently organized to establish water-works and electric-light plant, and construction work will shortly begin. Franchise was reported August 30 as having been received for constructing plant.

Comanche, Texas.—Cottonseed-oil Mill.—Comanche Cotton Oil Co. has increased capital stock from \$75,000 to \$100,000.

Corpus Christi, Texas.—Ice and Electric Plant.—E. A. Born, Royall Glivens and William B. McCampbell have incorporated the Corpus Christi Ice & Electric Co. with \$65,000 capital stock.

Corsicana, Texas.—Oil Wells.—Rush Creek Oil Co. has been incorporated with \$100,000 capital stock by R. B. Caldwell, W. M. Peck and J. A. Thompson.

Dallas, Texas.—Land and Immigration.—Texas & New Mexico Land & Immigration Co. has been incorporated with \$50,000 capital stock by Felix Greenwood, S. E. Edman and M. E. Yinger.

Dallas, Texas.—Land Improvement.—Incorporated: North Texas Realty Co., with \$10,000 capital stock, by B. D. Milan, George L. Schumaker and L. B. Milan.

Dallas, Texas.—Engineering and Construction Company.—General Utilities Co., reported incorporated November 1 with \$100,000 capital stock, will design, construct and operate railway, light, power, hydraulic and gas plants, etc. E. P. Spears is president; Frederick H. Porter, vice-president and general manager, and J. U. Jones, treasurer; office, Slaughter Building.

Dallas, Texas.—Mining.—Incorporated: El Poviner Mining Co., with \$25,000 capital stock, by J. W. Webb, Jr., G. A. Beeman, J. E. Cockrell, Frank Reedy and associates.

Dallas, Texas.—Telephone System.—Reported that W. H. McGrath is securing the right of way through Texas for a long-distance telephone line, which is planned to extend from New York city to the City of Mexico.

Dallas, Texas.—Clothing and Overall Factory, etc.—Lang & Witchell have completed plans for improvements to plant of the Rose Manufacturing Co. at 172 Elm street. It is proposed to build an additional story and remodel building.

Fort Worth, Texas.—Knitting Mill.—It is reported that the Hudson Valley Mills of Kingston, N. Y., will establish a knit-underwear mill at Fort Worth.

Fort Worth, Texas.—Manufacturing.—Ira B. Sanders, J. E. Head and H. S. Hunter have incorporated the Sanders Manufacturing Co. with \$10,000 capital stock.

Frost, Texas.—Lumber Company.—Frost Lumber Co. has amended charter changing name to the Morgan Hardware & Lumber Co. and increasing capital stock from \$5000 to \$10,000.

Gilmer, Texas.—Water-works.—O'Neil Engineering Co., Dallas, Texas, is engineer in charge of the construction of water-works for which \$22,000 of bonds have been voted. J. R. Warren is Mayor.

Houston, Texas.—Linoleum, Window Shades, etc.—It is reported that the William Volker Company of Kansas City, Mo., manufacturers of window shades, linoleum, hangings, oilcloths, etc., has arranged for the establishment of plant. A building has been secured.

Houston, Texas.—Iron Works.—Petroleum Iron Works, Beaumont, Texas, which recently purchased site on which to locate plant, removing same from Beaumont, will shortly begin the erection of buildings, to include main factory building 60x200 feet, office building and warehouse. Petroleum tanks, tank cars, etc., are manufactured.

Houston, Texas.—Land Improvement.—Central Investment Co. has been organized with \$10,000 capital stock. Abe Gordon is president; J. M. Palkinski, vice-president; B. Litowich, secretary, and Sol Gordon, treasurer.

Houston, Texas.—Water-works.—It is reported that the Houston & Texas Central Railroad will install water system, with standpipes, artesian wells and system of mains, at its yards and shops. T. Fay is vice-president and manager, Houston, Texas.

Hubbard City, Texas.—Electric Light, Ice Plant, Bottling Works and Ice-cream Factory.—Union Central Light & Ice Co., operating electric-light, plate-ice plant, bottling works and ice-cream factory, will erect a brick building 66x150 feet. Company was reported last week as increasing capital stock from \$25,000 to \$50,000.*

McClanahan, Texas.—Cotton Gin.—Farmers' Gin Co., it is stated, will rebuild cotton gin reported burned October 18.

Moody, Texas.—Electric-light Plant.—Reported that J. B. Earl of Waco, Texas, will install electric-light plant.

Palestine, Texas.—Publishing.—Plainedealer Publishing Co. has been incorporated with \$2500 capital stock by O. A. Dial, E. M. Griggs, E. A. Swanson, J. A. R. Wrenn, F. F. McCallan and associates.

Paris, Texas.—Sawmills.—Dodd-Lear Hardwood Lumber Co. of Granite, I. T., will erect

two sawmills; daily capacity 40,000 feet hardwood lumber; managing officers, G. W. Dodd and R. M. Lear. (Referred to November 1.)

Port Lavaca, Texas.—Townsite.—Alamo Beach Investment Co., organized by W. C. Noble of Port Lavaca, B. L. Vineyard and A. M. Waugh of Eagle Lake, Texas; S. M. Scott of Houston, Texas; Herbert Hurd of Kansas City, Mo.; John Linderholm and C. A. Scott of Chicago, Ill., to develop 4000 acres of land as townsite, has begun surveying, etc., preparatory to grading the streets, construction of wharves, etc.

San Antonio, Texas.—Land Improvement.—J. R. Lytle, Walter P. Napier of San Antonio, J. G. Street, Sr., Hall P. Street, Allen M. Street and J. C. Street, Jr., all of Oklahoma City, O. T., have incorporated the Street Realty Co. with \$30,000 capital stock.

San Antonio, Texas.—Industrial Company.—American Industrial Co. has been incorporated with \$10,000 capital stock by Dr. F. Paschal, W. F. Woods and Van A. Webster.

Sherman, Texas.—Cotton-oil Products.—Incorporated: Sherman Cotton Oil Provision Co., with \$100,000 capital stock, by W. F. Sawyer, R. L. Heflin and W. R. Brent.

Tyler, Texas.—Cotton Mill.—Reported that Philip Jones will organize company with capital stock of \$100,000 to build cotton mill.

Uvalde, Texas.—Electric-light and Ice Plant.—Uvalde Electric Light Co. has been reorganized and is making improvements to electric-light plant for increasing facilities. Contract has also been let for the installation of a 10-ton ice plant to run in conjunction. G. B. Fenley is president; W. F. Morgan, secretary.

Victoria, Texas.—Land Improvement.—Continental Investment Co. of Illinois, it is reported, has purchased through Rev. Homer T. Wilson about 8000 acres of prairie and timber land near Victoria. It is stated that the purchasers will lay out a townsite, cutting the tract into small farms for Illinois settlers.

Wichita County, Texas.—Townsite.—J. A. Kemp and associates of Wichita Falls, Texas, have purchased the Burnett pasture, consisting of 17,500 acres of land, on which it is proposed to locate townsite to be known as Burke-Burnett.

VIRGINIA.

Ashland, Va.—Laundry and Ice Plant.—G. W. M. Taylor, reported last week as having purchased hotel building and to add laundry and ice plant, will erect annex, 35x84 feet; ordinary concrete; cost \$8000 to \$10,000, equipping as ice plant and laundry.*

Bedford City, Va.—Woolen Mill.—Bedford Mills Co. will build addition, as reported last week. Addition will be of brick, 84x58 feet, to be used for burling, specking, cloth rolling, packing and shipping. No machinery required.

Bedford City, Va.—Tobacco Plant.—Albert & Co., leaf-tobacco dealers, will rebuild on an enlarged scale plant recently burned. (Erroneously reported last week as Berry-Suhling Company's plant burned.)

Blacksburg, Va.—Electric-light Plant.—Blacksburg Power & Supply Co. has secured a 30-year franchise for lighting the town. Company was reported September 6 as to erect electric-light, ice, gas-producer plants and sawmill.

Lynchburg, Va.—Electric-light Plant.—Contract will be let November 10 for furnishing equipment for a complete arc-lighting plant driven by both steam and water-power. Leon Goodman is chairman of committee on electricity; Lamar Lyndon, consulting engineer, 80 William street, New York.*

Newport News, Va.—Grain Elevator.—Dabney Brokerage Co. has contracted for machinery to be installed in warehouse, converting same into a grain elevator, including cleaning machinery and feed mill; Burrell Construction Co., Chicago, Ill., engineers and contractors.

Newport News, Va.—Terminal Improvements.—Reported that Alsop & Pierce have contract for constructing passenger pier, enlarging terminal station and building new freight depot for the Chesapeake & Ohio Railway. It is stated that about \$1,000,000 will be expended in improvements.

Norfolk, Va.—Land Improvement.—Incorporated: Little Bay Company, with T. J. Powell, president, and F. C. Cabell, secretary-treasurer; authorized capital stock \$10,000.

Norfolk, Va.—Laundry.—Monarch Laundry Co. has been incorporated with an authorized capital stock of \$50,000. S. T. Ford is president; W. C. Humphreys, secretary-treasurer.

Norfolk, Va.—Water-works.—Board of Control will request the Council and Board of Aldermen to make an appropriation of \$10,000 for extending water mains. Address The Mayor.

Norfolk, Va.—Packing Plant.—Reported that Swift & Co. of Chicago, Ill., are completing arrangements for the erection of packing plant; to be five or six stories and contain modern equipment. C. M. Secker is local manager.

Oak Grove, Va.—Electric-light Plant.—Town has voted affirmatively the proposed \$16,000 bond issue for the construction of electric-light plant. Address Town Clerk.

Portsmouth, Va.—Sewerage System and Electric-light Plant.—City contemplates constructing sewer in the Fifth ward, for which \$110,000 of bonds will be issued. The installation of electric-light plant is also being considered. L. P. Slater is City Clerk.

Pulaski, Va.—Coal Company.—Inland Coal & Coke Co. has been incorporated with H. Hardway of Georgel, Va., president; M. H. Tompkins of Christiansburg, Va., vice-president.

Radford, Va.—Pipe Works.—Glamorgan Pipe & Foundry Co. of Lynchburg, Va., lessee of the pipe works at Radford, is making improvements to plant which will increase the present output of 125 tons daily. Included in the improvements are the installation of an electric traveling crane with a lifting capacity of 15 tons, a 60-inch lathe and a boring mill.

Richmond, Va.—Cold-storage Plant.—Reported that Adolphus Busch of St. Louis, Mo., has purchased site on which to erect cold-storage plant previously referred to.

Roanoke, Va.—Refrigerating Plant.—Randolph Market Co., previously reported as having let contract to E. Tatterson, Norfolk, Va., for the erection of store building, will also install refrigerating plant operated by electricity. Building will be of reinforced concrete; fireproof; 335x95 feet. John Keenan Peebles, Norfolk, Va., is architect and engineer in charge. About \$75,000 will be invested.

Sewell's Point, Va.—Ice Plant.—Booth & Lambert of Petersburg, Va., who have the privilege of locating 35-ton ice plant on the Exposition grounds, have secured site.

Suffolk, Va.—Drug Company.—Suffolk Drug & Extract Co. has been incorporated with \$10,000 capital stock. J. F. Rawles is president; D. N. Rawles of Ivor, Va., vice-president, and E. Entwistle of Wakefield, Va., secretary.

WEST VIRGINIA.

Charleston, W. Va.—Gas Mains.—Union Gas & Electric Co. of Cincinnati, Ohio, it is reported, will arrange to construct pipe lines from the West Virginia gas fields to Cincinnati and Cleveland, Ohio. German Bros., who own 400,000 acres of gas lands, are said to be interested. The Union Gas & Electric Co. is a subsidiary company of the Columbia corporation.

Ennis, W. Va.—Tunnel.—Norfolk & Western Railway is reported as completing arrangements for the construction of proposed tunnel four miles long at a cost of \$4,000,000; to have its west portal between Ennis and Switchback and its east portal near Coopers, W. Va. C. S. Churchill, Roanoke, Va., is chief engineer.

Fairmont, W. Va.—Gas Wells.—Rolf M. Hite, William J. Rathburn, Mary Virginia Hite, Glen F. Barnes and J. Frank Ritchie have incorporated the Lucile Gas Co. with \$50,000 capital stock.

Harper's Ferry, W. Va.—Brewery.—Incorporated: Jefferson Brewing Co., with \$10,000 capital stock, by William O. Ran, Jas. Conway, Mary V. Gocht of Harper's Ferry, Andrew Peterschak and John Peterschak of Wilkes-Barre, Pa.

Kuro (not a postoffice), W. Va.—Coal Mines and Coke Ovens.—Black Wolf Coal & Coke Co. has been incorporated with \$100,000 capital stock by Frank P. Christian, James R. Gellican, Thomas D. Christian and T. W. Gellican, all of Lynchburg, Va.

Lester, W. Va.—Feed and Lumber Company.—Incorporated: Lester Feed & Lumber Co., with \$25,000 capital stock, by T. D. Galloway of Lester, W. T. Quesenberry, Thomas K. Laing, Ashton Fife, W. T. Shumate of Beckley, W. Va.

Parkersburg, W. Va.—Lumber Plant.—Shenandoah Lumber Co., reported incorporated last week with \$1,000,000 capital stock, has completed organization with C. E. Bryan, president; S. Mills, Jr., vice-president; G. W. McElfresh, secretary, and H. L. Hastings, treasurer. The company will take over the property of the United States Lumber Co., including 25,000 acres of timber land in Bath and Highland counties.

Parkersburg, W. Va.—Iron and Metal Works.—Parkersburg Specialty Co. has been incorporated with \$100,000 capital stock by J. L. Fisher, A. E. Succof, H. S. Duncan, Geo. W. Flowers and J. T. Kell.

Parkersburg, W. Va.—Furniture Company.

Chartered: McGregor-Amis Furniture Co. with \$25,000 capital stock by W. B. McGregor, B. T. McGregor and A. H. Dils of Parkersburg; Herman L. Amis and B. B. Amis of Washington, D. C.

Parkersburg, W. Va.—Shoe Factory.—Willis Morris Shoe Co. has been incorporated with \$10,000 capital stock by Willis Morris, Herman Krull, S. S. Morris, L. J. McGee and Dorr Costo.

Philippi, W. Va.—Hardware and Furniture. H. S. Byrer, Harry H. Byrer, I. W. Byrer, M. G. Byrer and others have incorporated the Philippi Hardware & Furniture Co. with \$5,000 capital stock.

Raleigh County, W. Va.—Coal Mines and Coke Ovens.—New Flat Top Mining Co. has been incorporated with \$300,000 capital stock by O. C. Nelson, H. B. Corner, J. R. Nutt, E. V. Hale and H. D. Messick, all of Cleveland, Ohio, to develop 9000 acres of coal land in Raleigh county recently acquired.

Randolph County, W. Va.—Timber.—Wyoming Lumber Co., Thos. M. Herbert, secretary, Wilkes-Barre, Pa., has purchased timber lands in Randolph county, but no plans have been made as yet for its development. (Referred to October 25.)

Welch, W. Va.—Hardware.—Moore-Summers Hardware Co. has been incorporated with \$25,000 capital stock by George Skidmore, T. J. Rhodes, W. W. Henretze, A. Z. Litz of Welch, J. M. Summers of Huntington, W. Va.; Thomas J. Moore of Spencer, W. Va., and associates.

Wheeling, W. Va.—Beverage Factory.—Incorporated: Red Cliff Company with \$25,000 capital stock by William Radcliffe, Count L. Radcliffe, W. C. Knowles, Herman Fette and John S. Ritz.

INDIAN TERRITORY.

Bartlesville, I. T.—Oil-pipe Line.—It is rumored that Jennings Bros. of Pittsburg, Pa., will construct a pipe line from Bartlesville, I. T., to Port Arthur, Texas, a distance of approximately 500 miles. It is also stated that the construction of a refinery at Port Arthur with a capacity of 16,000 barrels of kerosene daily will probably be the outcome; estimated cost of pipe line and refinery, \$5,000,000.

Boynton, I. T.—Oil and Gas Wells.—Chartered: Boynton Oil & Gas Co. with \$50,000 capital stock by W. D. Cornellius, J. W. Crawford, J. H. Ogle, H. L. Wineland and others.

Coalgate, I. T.—Water-works.—City is considering the issuance of \$72,000 of bonds for constructing water-works. Address The Mayor.

Roff, I. T.—Oil and Gas Wells.—Roff Oil & Gas Co. has been incorporated with \$750,000 capital stock. Leon Kahn is president; J. W. Vaden, vice-president; A. L. Bullock, secretary; A. L. Nims, treasurer, and W. P. Casey, general manager.

Sulphur, I. T.—Natural-gas Mains.—Reported that Robert Galbreath of Mounds, I. T., has secured 21-year natural-gas franchise.

Tecumseh, I. T.—Water-works.—O'Neill Engineering Co., Dallas, Texas, is in charge of the construction of water-works for which \$60,000 of bonds were voted. W. B. Ash is Mayor.

Tulsa, I. T.—Cotton Gin.—Jas. K. Jones, Jr., of Washington, D. C., is reported to organize company for the establishment of cotton gin.

OKLAHOMA TERRITORY.

Clinton, O. T.—Water-works.—Reported that the city has voted the proposed \$32,000 bond issue for water-works. Address The Mayor.

Olustee, O. T.—Telephone System.—Olustee Telephone Co. has been incorporated with \$5,000 capital stock by E. G. Walcott, T. I. Truscott, J. W. Edwards, D. W. Walden, W. T. Armstrong and others.

El Reno, O. T.—Lumber Company.—Incorporated: Stewart & Conklin, with \$15,000 capital stock, by T. J. Stewart, R. D. Conklin and Bettie Stewart.

El Reno, O. T.—Ice and Cold-storage Plant. El Reno Ice & Cold Storage Co. has been incorporated with \$50,000 capital stock by Henry Lassen, Henry Schafer and Herman Harms.

Guthrie, O. T.—Cannery.—Capital Canning Co. has let contract to J. T. Brickner at \$3750 for the erection of building, and to O. Hubbel, Indianapolis, Ind., at \$3735.60 for equipment. (Referred to September 27.)

Lawton, O. T.—Water-works and Sewerage System.—City is considering the extension of water-works and sewerage system; estimated cost \$50,000. W. R. Julian is City Clerk.

Mountain Park, O. T.—Cottonseed-oil Mill

and Alcohol Distillery.—Cotton Oil & Fuel Co. has incorporated with \$800,000 capital stock to operate cottonseed-oil mill and alcohol distillery under the new denatured process; incorporators, John M. Hayes, J. C. Fletcher, T. C. Moessner, T. H. Jones and J. L. Rush.

Oklahoma City, O. T.—Concrete Works.—Mistletoe Concrete Co. of Oklahoma City and Fort Worth, Texas, has been incorporated with \$30,000 capital stock by J. W. Daniel of Oklahoma City, J. A. Crow and C. M. Crossland of Fort Worth, Texas.

Pawnee, O. T.—Water System.—Estimates are being prepared by Superintendent Nellis of the Pawnee Indian School for the construction of water-works at school, to cost approximately \$5000.

Perkins, O. T.—Electric-light and Power Plant.—J. A. Hirt, L. C. Shannon, George D. Frame, John Wagner and J. M. Boone have incorporated the Perkins Electric Light & Power Co. with \$5000 capital stock.

Shawnee, O. T.—Natural-gas Mains.—D. T. Flynn, representing the Oklahoma Natural Gas Co. of Oklahoma, O. T., has applied for franchise to furnish the city with natural gas. Mr. Flynn is president of the Shawnee Lighting Co.

BURNED.

Alderson, W. Va.—Alderson Academy; loss \$5000.

Athens, Tenn.—Athens Hosiery Mills' dye-house and engine-room; loss reported at \$20,000.

Baltimore, Md.—Riveting shop of the South Baltimore Steel Car & Foundry Co.; loss about \$30,000.

Beaumont, Texas.—Beaumont Rice Mills; loss \$150,000.

Bridgeport, Texas.—Lillard, Malone & Renshaw's cotton gin.

Camden, Ark.—Waters-Pierce Oil Co.'s warehouse.

DeFuniak Springs, Fla.—Darling & Co.'s turpentine still; loss \$3000.

Dickey (P. O. Gladding), Miss.—I. L. Robinson's sawmill, planing mill and grist mill.

Elkmount, Ala.—Hassie Morris' cotton gin; loss \$6000.

Enigma, Ga.—Smith & Smith's sawmill.

Fort Worth, Texas.—Ellison's mattress factory; loss \$10,000.

Gadsden, Ala.—Planters' Warehouse & Commission Co.'s warehouse; loss \$75,000.

Grandview, Texas.—Commercial Hotel.

Greenwood, Miss.—Greenwood Furniture Co.'s warehouse; loss \$30,000.

Guin, Ala.—Jim Pearce & Co.'s cotton gin.

Hardin, Ky.—Hardin Bank Building; Jesse Rutter, cashier.

Hillsboro, Texas.—C. F. Graham Dry Goods Co.'s building; reported loss \$175,000.

Jackson, Ky.—Arlington Hotel, S. S. Taulbee, proprietor; loss \$6000.

Kearney, Md.—Floyd Lee's sawmill.

Lafollette, Tenn.—Lafollette Coal, Iron & Railway Co.'s roundhouse.

Mansfield, Ga.—D. F. McCullough's cotton gin.

Meridian, Miss.—Meridian Planing Mill's plant; loss \$20,000.

Montezuma, Ga.—A. L. Felton's bakery.

Moulton, Ala.—C. C. Prince's grist mill and cotton gin; loss \$3000.

New Orleans, La.—Columbia Cotton Oil Mills & Manufacturing Co.'s plant; loss \$7000.

Osceola, Ark.—Osceola Cotton Oil Co.'s seedhouse and hullhouse; loss \$12,000.

Plaucheville, La.—Merchants & Planters' cotton gin; loss \$7000.

Stillwell, I. T.—Stillwell Hotel, owned by W. H. Walker; Commercial Hotel.

Somerset, Ky.—Newtonian Hotel; loss \$60,000.

St. Marks, Fla.—Coast Cypress Lumber Co.'s plant.

Toney Creek, S. C.—Cothran Bros.' cotton gin, etc.; loss \$1000.

Trenton, Texas.—W. J. Butler's cotton gin; loss \$7000.

Wellston, Mo.—Wellston Planing Mills.

Wilson, N. C.—Bynum & Carroll's warehouse; loss \$1000.

Lumber-Plant Sale.

The property of the Atlantic Shingle, Cooperage & Veneer Co., comprising an entire manufacturing plant located at Wilmington, N. C., is to be offered for sale on December 17. This will be an offering at public auction to the highest bidder. For full particulars address Preston Cumming, receiver.

BUILDING NOTES.

* Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

Alma, Ark.—Bank Building.—Farmers' Bank, recently organized with J. F. McGehee, president, will arrange for the erection of modern bank building.

Alva, O. T.—Science Hall and Library Building.—Bids will be received until November 23 by the secretary of the Board of Education for Normal Schools of Oklahoma, Edmond, O. T., for the construction of a science hall and library building on the ground of the Northwestern Normal School, Alva, O. T., in accordance with plans and specifications on file in the office of secretary, Edmond, O. T.; in office of president of Northwestern Normal School, Alva, and S. A. Layton, architect, El Reno, O. T. Building to be constructed under and in accordance with Article 4, Chapter 4, Session Laws of Oklahoma of 1905. Certified check must accompany each bid; usual rights reserved.

Argenta, Ark.—Bank Building.—W. W. Hurst, cashier of the Valley Savings Bank, is arranging for the erection of a three-story brick bank building 50x100 feet.

Atlanta, Ga.—Auditorium.—Tabernacle Realty Co. has been incorporated with \$100,000 capital stock and privilege of increasing to \$300,000 to erect auditorium referred to July 12, for which site has been purchased; incorporators, Len G. Broughton, E. H. Thornton, E. C. Callaway, Joseph Broughton and associates.

Atlanta, Ga.—Church.—Capitol Avenue Baptist Church is planning the erection of an addition to edifice. John E. Briggs is pastor.

Atlanta, Ga.—Masonic Temple.—Plans by Morgan & Dillon have been adopted for \$200,000 Masonic Temple reported August 16 to be erected.

Augusta, Ga. Hotel.—Louis F. Goodrich has completed plans for a three-story brick hotel to be erected by L. J. Williams on site recently purchased; cost \$40,000 to \$50,000.

Bainbridge, Ga.—Business Building.—L. C. Toole has purchased site on which to erect a two-story brick building with plate-glass and marble front.

Baltimore, Md.—Dwelling.—Enoch P. Callow, 801 Fidelity Building, Charles and Lexington streets, has awarded contract to B. F. Bennett, 123 South Howard street, for the construction of dwelling on Linden avenue near Whitelock street; two and one-half stories; brick with stone trimmings; electric wiring and fixtures; sanitary plumbing; heating system; cost about \$13,000; Charles E. Cassell & Son, architects, Law Building, 225 Courtland street.

Baltimore, Md.—Dwellings.—The Philip C. Mueller Building Co., 1443 East Baltimore street, will erect 41 two-story brick dwellings on Oliver street and Felt avenue.

Baltimore, Md.—Restaurant.—Andrew Forbes, Philadelphia, Pa., has awarded contract to Engineering-Contracting Co., 209 North Calvert street, for remodeling building at northeast corner Baltimore and Howard streets. Interior fixtures, electric wiring and fixtures, sanitary plumbing and other improvements will be installed; Simonson & Pietsch, architects, American Building, Baltimore and South streets.

Baltimore, Md.—Storage Warehouse.—Chas. H. Kaufman, northwest corner Lafayette avenue and Division street, has engaged Morris & Clifford, architects, Equitable Building, Fayette and Calvert streets, to prepare plans and specifications for and superintend the construction of storage warehouse to be erected at 512 and 534 West Lafayette avenue; five stories, 25x103 feet; brick with stone trimmings; reinforced-concrete floors and roof; slag roof; metal frames and sashes; steel rolling doors; electric wiring and fixtures; terra-cotta partitions.

Baltimore, Md.—Dwellings.—The Luzerne Land Co. has awarded contract to Frank Novak, 800 North Duncan street, for the construction of 11 two-story brick dwellings, with hot-air-heating systems, on McElderry street near Lakewood avenue to cost about \$12,000.

Baltimore, Md.—Dwellings.—The Owners' Realty Co. has awarded contract to Frederick Wright Company, National Marine Bank Building, Gay and Water streets, for the construction of 13 two-story brick dwellings with hot-air-heating systems to cost about \$15,000.

Baltimore, Md.—Restaurant.—Julius Wegner, 3425 Madison avenue, has awarded contract to M. C. Davis, 5 Hopkins place, for the construction of restaurant building at 9 and 11 West German street; two stories, 38x

62 feet; brick with granite base and limestone trimmings; structural iron and steel; electric wiring and fixtures; sanitary plumbing; steam-heating system; slag roof; cost about \$30,000; A. Lowther Forrest, architect, Professional Building, 330 North Charles street.

Baltimore, Md.—Car Barn.—It is reported that the Washington, Baltimore & Annapolis Electric Railway Co., Maryland Trust Building, has purchased lot at corner Carey and Paca streets and will erect car barn on the site, which is 66x197 feet.

Baltimore, Md.—Dwellings.—The City & Suburban Realty Co., 305 Calvert Building, has commissioned George Clothier, Jr., architect, Hoffman Building, 11 East Lexington street, to prepare plans for 18 two-story brick dwellings to be erected at Lanvale and Castle streets at cost of about \$30,000.

Baltimore, Md.—Dwellings.—Henry W. Vogt has awarded contract to James Brooks & Son, Arlington, Md., for the construction of six two-story brick dwellings on Pimlico road near Kate avenue to cost about \$12,000; F. E. Beall, architect, 213 St. Paul street.

Baltimore, Md.—Dwellings.—The Concrete Development Co. has commissioned Henry J. Tinley, architect, Hoffman Building, 11 East Lexington street, to prepare plans and specifications for 24 two-story dwellings to be constructed entirely of concrete on Mankin avenue opposite Wyman Park. Electric wiring and fixtures, sanitary plumbing and hot-water-heating systems will be installed.

Baltimore, Md.—Dwelling.—Mrs. Mary D. Gréne has awarded contract to H. Clay Shelley, 2214 Druid Hill avenue, for the construction of two-and-one-half-story frame dwelling with modern conveniences at Roland Park, to cost about \$10,000; Jacob F. Gerwig, architect, Hoffman Building, 11 East Lexington street.

Baltimore, Md.—Restaurant.—Guido A. Vincente, 422 Light street, has commissioned Clarence E. Anderson, Law Building, 225 Courtland street, to prepare plans and specifications for one-story brick restaurant building, 18x70 feet, at corner Light and Perry streets.

Baltimore, Md.—Dwellings.—Clarence E. Anderson, architect, Law Building, 225 Courtland street, is preparing plans for 13 two-story brick dwellings to be erected on Liberty street, Waverly.

Baltimore, Md.—Dwellings.—H. R. Burdette, builder, 1811 East North avenue, will erect 30 two-story brick dwellings on Patterson Park and Collington avenues, to cost about \$45,000; George Clothier, Jr., architect, Hoffman Building, 11 East Lexington street.

Batesville, Ark.—Dormitories and Administration Building.—Charles L. Thompson, Little Rock, Ark., will prepare plans for two dormitories and administration building to be erected at the Masonic Home; cost \$30,000.

Berkley, Va.—Business Building.—I. H. Goodman, 616 Liberty street, Norfolk, Va., will let contract November 22 for the erection of two-story brick building 30x105 feet, for which plans have been prepared by C. J. Woodsend; gas and electric fixtures; freight elevator; cost \$6000 to \$7000. Contractors are invited to submit estimates.

Birmingham, Ala.—Warehouse.—W. C. Weston has completed plans for warehouse to be erected by the Wimberly & Thomas Hardware Co.; four stories, 250x140 feet; brick; mill construction with 170 caissons; two elevators.

Bogalusa (not a postoffice), La.—Hotel, School Building, etc.—Great Southern Lumber Co. will erect a \$100,000 hotel, \$15,000 school building, \$10,000 theater and \$16,000 hospital building in lumber town which it has established, reference to which was made May 3 last; general offices, 950 Elliott Square, Buffalo, N. Y.; F. H. Goodyear, president.

Bull's Gap, Tenn.—Bank Building.—People's Bank, organized with J. B. Willoughby, president, reported October 25 to erect building, will build a two-story structure 20x40 feet; ordinary; brick veneer.

Charleston, S. C.—Police Station.—Plans by R. Thomas of New York, N. Y., have been recommended for adoption for police station to be erected.

Charlotte, N. C.—Flat Buildings.—Brown & Co. are having plans and specifications prepared for a row of flat buildings; two stories; constructed of concrete blocks and heated by steam from a central plant; cost \$25,000. J. C. Herron, who will furnish the concrete blocks used in the construction, will establish a plant on the premises for manufacturing same.

Charlotte, N. C.—Office Building.—A stock company has been organized to erect a four-story office building to cost approximately \$65,000. W. T. Corwith, secretary Greater Charlotte Club, can give information.

Chattanooga, Tenn.—Store Building.—Cameron & Barr are having plans prepared by Bearden & Foreman for a two-story building, 25x130 feet, of pressed brick and stone.

Chattanooga, Tenn.—Warehouse.—Bearden & Foreman are preparing plans for a four-story brick building, 33x100 feet, to be erected by the Chattanooga Development Co. at a cost of \$15,000.

Chattanooga, Tenn.—Hotel.—The hotel to be erected by the Stone Fort Land Co. for the Chattanooga Hotel Co., for which George Baker Long of Buffalo, N. Y., was reported last week as having contract, will be 12 stories; steel-frame construction; concrete floors; outside walls up to second floor of marble; balance will be laid with mottled glazed brick with terra-cotta trimmings; all cornices except large projecting cornices will be of terra-cotta; window sills and coping of stone. The equipment will include two passenger and one freight elevator and small swift elevator for use of help; electric baggage lift. The electric work will consist of conduit work throughout; three-wire system; two 220-volt direct-connected generators and engines. Power plant will contain two water-tube boilers, each 200-horse-power capacity, with feed pumps and feed-water heaters; exhaust-fan system; refrigerating plant; vacuum cleaning system; complete telephone system. An artesian well will be bored under the hotel to a depth of 300 feet, supplying the entire hotel; cost \$1,000,000. Architect Downing prepared the plans.

Clinchport, Va.—Bank Building.—Farmers and Merchants' Bank, organized with O. H. Gobble, president, will arrange for the erection of building.

Columbia, Mo.—Association Building.—E. P. Miller has contract to erect Y. M. C. A. building at the University of Missouri referred to October 11; 92x36 feet; wood, brick and stone; ordinary construction; low-pressure steam-gravity heating plant; combination lighting fixtures; hand-power freight lift; cost \$50,000. H. L. Pierce prepared the plans.

Crockett, Texas.—Courthouse.—Houston county is considering the erection of an addition to courthouse to cost \$9000. Address Porter Newton, County Judge.

El Paso, Texas.—School Building.—The issuance of \$150,000 school bonds is being considered. Address Secretary School Board.

El Paso, Texas.—Store Building.—Rattenburg & Davis have contract to erect store building for the F. D. Porter Estate (previously reported); three stories, 30x120 feet; electric fixtures; freight and passenger elevator. Trost & Trost prepared the plans.

El Paso, Texas.—Association Building.—C. A. Peterson has contract to erect building for the Young Men's Christian Association, previously reported; three stories, 75x120 feet; ordinary construction; steam heat; cost \$70,000. Trost & Trost prepared the plans.

Eureka Springs, Ark.—Theaters, etc.—Southwestern Amusement Construction Co. has been organized with \$50,000 capital stock to build amusement houses. Plans for amusement buildings at Eureka Springs are now being drawn. Louis Hencke is president; C. W. Blair, vice-president, and M. A. Westow, manager.

Florence, S. C.—School Building.—J. A. Johnson has contract for the erection of school building in North Florence.

Florence, Ala.—Depot.—Southern Railway has purchased site on which it is stated a depot will be erected, replacing structure recently burned. D. W. Lum, Washington, D. C., is chief engineer.

Fort Barrancas, Fla.—Stable and Coal Shed.—Bids marked "Proposals for Construction of Public Buildings" and addressed L. S. Chapplear, first lieutenant, Q. M., Fort Barrancas, Fla., will be received until November 2 for constructing, plumbing and electric wiring one stable and constructing one coal shed at Fort Barrancas. Information furnished on application. United States reserves usual rights.

Fort Smith, Ark.—Library Building.—Contract will be let November 12 for the erection of Carnegie Library building to cost \$25,000; building to be 88x66 feet and 50 feet high, equipped with steam heat, electric and gas lights. Address The Mayor.

Fourche, Ark.—Hotel.—J. T. Joy of Little Rock, Ark., has contract to erect 25-room hotel for Ben Klaisse; cost \$6000.

Greensfield, Texas.—Cotton Warehouse.—Contract will be let at once for the erection of warehouse reported last week for the Farmers' Union Warehouse Co., 50x150 feet. G. A. Hombolt prepared the plans.

Greensboro, N. C.—Business Building.—C. W. Jennings is arranging for the erection of a three-story building 40x25 feet with plate-glass and cement-block front.

Greenville, Texas.—Hospital.—Contract will be let at once for reconstructing brick building 64x90 feet for hospital purposes, to be known as Physicians and Surgeons' Hospital. About \$12,500 will be expended. George Lindsay prepared the plans.

Gulfport, Miss.—Building.—D. J. Haire has contract at \$15,745 for the erection of a two-story brick building for G. W. Banfill.

Gulfport, Miss.—Church.—J. M. Bramlett, Gulfport, Miss., is preparing plans for brick edifice to be erected by the Baptist congregation; also for brick edifice to be erected by the Presbyterian congregation.*

Gulfport, Miss.—Dwelling.—F. M. Turner is having plans prepared by J. M. Bramlett, Gulfport, Miss., for proposed \$4000 residence.

Jackson, Miss.—Stable.—W. J. Croom will erect concrete-block livery stable to cost \$15,000.

Jackson, Miss.—Store Building.—R. W. Millsaps will shortly let contract for the erection of two store buildings to cost \$40,000.

Jackson, Miss.—Library Building.—J. F. Barnes & Co. have contract at \$14,440 for the erection of Carnegie library building at Millsaps College, for which plans have been prepared by Harry N. Austin; 66x70 feet; press brick; stone trimmings; slate roof; ordinary construction; hot-air-heating plant; electric fixtures; hand elevator. (Referred to October 11).

Jacksonville, Fla.—Dwelling.—Chas. A. Brown, Jr., 35 East Bay street, has had plans prepared by Keith & Co., Minneapolis, Minn., for a two-story residence, 36x32 feet, to cost \$9000.

Jacksonville, Fla.—Bank Building.—Atlantic National Bank has purchased site on which to erect building.

Juliette, Ga.—School Building.—Reported that the Juliette and Hill academies will be consolidated and a new building erected. Address The President.

Kansas City, Mo.—Hospital.—Jackson county has voted affirmatively the proposed \$250,000 county hospital bonds. Address County Clerk.

Kansas City, Mo.—Warehouse.—F. R. McDormand has secured permit for the erection of a three-story brick warehouse 50x119 feet, to cost \$30,000.

Lake Charles, La.—Office Building.—J. A. Landry has purchased site, 200x135 feet, on which to erect a five-story office building.

Lake Charles, La.—Store and Office Building.—Plans by I. C. Carter have been adopted by David Block for proposed store and office building; two stories, 53x100 feet; brick.

Lake Charles, La.—Opera-house.—Maginnis & Reimers have completed plans for a one-story frame opera-house to be erected by Frank R. Flanagan and associates at a cost of \$12,000.

Lakeland, Fla.—Business Building.—Construction work has begun on business building being erected by Jack Adams; two stories, 100x25 feet; plate-glass front; cost \$50,000.

Lexington, Ky.—Bank Building.—C. E. Richards of Columbus, Ohio, has completed plans for building to be erected by the Third National Bank, and bids for the construction will be received at once.

Lexington, Ky.—Hotel.—The directors of the Phoenix Hotel Co. have accepted the plans of Richards, McCarty & Bulford, Columbus, Ohio, for proposed eight-story addition to hotel.

Little Rock, Ark.—City Hall.—Stewart & Schmeler have contract at \$154,883 for the erection of City Hall mentioned October 11.

Little Rock, Ark.—Building.—Thomas Cox has secured permit for the erection of a two-story brick building to cost \$8000.

Louisville, Ky.—Dwelling.—Dr. Joseph Hobson has secured permit for the erection of brick-veneer residence to cost \$6000.

Louisville, Ky.—Library Building.—Building Committee Louisville Free Public Library, 533-549 Fourth avenue, will receive bids until November 13 for the Highland Branch Library (revised plans). Proposals must cover all labor and material required for excavations, brickwork, cut stone, ironwork, concrete, tiling, plaster work, marble work, carpenter work, roofing and sheet-metal work, plumbing, heating, electric wiring and other work shown and specified. Plans and specifications must be examined at the Building Contractors' Exchange in Tyler Building. Certified check for \$1000 must accompany each bid; usual rights reserved.

Louisville, Ky.—Apartment-house.—H. W. Steinecker, 2315 18th street, has contract for apartment-house to be erected by R. T. Coleman, Equitable Building; three stories, 70x160; brick; ordinary construction; natural-gas heat; gas and electric fixtures; cost \$48,000. (Referred to November 1.)

Louisville, Ky.—Dwelling.—McDonald & Dodd, 600 Equitable Building, are preparing plans for residence to be erected by William Speed, 331 West Main street; 2½ stories; brick and stone; cost \$8000.

Louisville, Ky.—Church.—St. Stephen's Episcopal Church, Frank W. Hardy, pastor, has purchased site on which to erect edifice.

Macon, Ga.—Office Building.—Henry Horne, representing the owners, is arranging for the erection of an eight-story reinforced concrete building, fireproof construction, 50x120 feet.

Mathiston, Miss.—School Building.—Town will issue \$12,000 of bonds for school purposes. Address Town Clerk.

Memphis, Tenn.—Dwelling.—R. Overby is arranging for the erection of a two-story stone residence to cost \$10,000.

Memphis, Tenn.—Apartment-house.—L. C. DeVan has completed plans and is receiving bids for a two-story apartment-house 84x200 feet, of brick with concrete foundation and composition roof.

Monsett, Mo.—Theater.—Southwestern Amusement Construction Co., reported incorporated under Eureka Springs, Ark., with Louis Hencke, president, is having plans prepared for the erection of a theater.

Montezuma, Ga.—Livery Stable.—T. O. Perry of Oglethorpe, Ga., has contract to erect livery stable for T. R. McKenzie; two stories, 75x90 feet; brick foundation; sheet-iron covering and siding.

Montgomery, Ala.—Fire Station.—City has purchased site at Highland Park, 111x130 feet, on which to locate fire station. Plans have not been prepared. W. M. Teague is Mayor.

Montgomery, Ala.—Office Building.—The office building contemplated by W. M. Teague and associates is a 10-story structure 80x110 feet; fireproof; equipped with every convenience necessary, including elevators, modern lighting and heating systems, etc. Gay & Teague Company was reported November 1 as organized with \$200,000 capital stock for this purpose.

Nazareth, N. C.—School Building.—Rev. Thos. F. Price has had plans prepared by Barrett & Thomson, 117½ Fayetteville street, Raleigh, N. C., for school building; three stories, 52x70 feet; reinforced concrete, brick and artificial stone; composition roof; hard plaster, etc.; cost \$12,000.

New Decatur, Ala.—School Building.—City has voted affirmatively the \$25,000 bond issue mentioned October 4 for the erection of school building. Address The Mayor.

New Orleans, La.—Church.—Plans by A. Frank McDonnell have been adopted for \$100,000 edifice to be erected on St. Charles avenue as a memorial to Dr. B. M. Palmer.

Norfolk, Va.—Hotel.—Chartered: Exposition Hotel Co. with an authorized capital stock of \$50,000. G. A. Schmels is president; G. F. Adams, vice-president, and W. H. White, Jr., secretary-treasurer.

Norfolk, Va.—Store Building.—S. W. Wilson has purchased site in South Norfolk on which to erect a two-story brick building 32x80 feet.

Norfolk, Va.—Amusement Building.—Incorporated: Colonial Virginia, with \$60,000 capital stock. A building 50x70 feet, to cost \$5000, will be erected. T. A. Jones is president.

Norfolk, Va.—Power-house, etc.—Bids will be received until November 12 at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., for erecting power-house, oilhouse, boardwalk, pier and cistern, making necessary changes to present rain pipes, furnishing and installing piping, lattice screens for house foundation and replacing one foundation pier under cottage, furnishing platforms and foundations for elevated water tank, also installing above tank and tower, both of which are to be furnished by the Government, including all necessary labor and materials, at the United States navy-yard, Norfolk, Va.

Oklahoma City, O. T.—Building.—Frank H. Englis and Hugh H. Hilman will erect a two-story building, 50x110 feet, equipping with electric fixtures, electric elevators; cost \$15,000.

Oklahoma City, O. T.—Store Building.—George Barnett is arranging for the erection of a three-story brick building 50x130 feet.

Oklahoma City, O. T.—Convention Hall.—Contract has been let for the erection of proposed convention hall 100x104 feet; to have a seating capacity of 6000 and cost \$30,000. Address City Clerk.

Pawhuska, O. T.—School Building.—City will vote November 13 on the issuance of \$20,000 of bonds for school purposes. Address Mayor Hirt.

Pass Christian, Miss.—School Building.—J. D. Haire of Gulfport, Miss., has contract at \$16,452 for the erection of school building

previously reported. J. M. Bramlett of Gulfport, Miss., prepared the plans.

Penland, N. C.—School Building.—Wesley B. Connolly will receive bids for the erection of a two-story school building, 54x75 feet, for the Seven Springs Farm and Industrial School; frame and concrete blocks; metal-shingle roof; wood-fiber plaster; electric fixtures. M. E. Parmelee, Clinch avenue, Knoxville, Tenn., prepared the plans.

Pensacola, Fla.—Pythian Temple.—S. F. Fulgham is lowest bidder and will be awarded contract for the erection of Pythian Temple referred to October 18; 52x130 feet; mill construction; steam heat; electric and gas fixtures; electric elevators; cost \$35,000. Lamar & Fulgham, 310 Brent Building, prepared the plans.

Pine Bluff, Ark.—Hospital.—Hot Springs Concrete Co. of Hot Springs, Ark., has contract for the construction of foundation for the Davis Hospital. Contract was previously reported as let to the Prather Construction Co. The latter company surrendered contract and bids were readvertised.

Port Arthur, Texas—Business Building.—C. H. Page, Jr., Austin, Texas, has prepared plans for a three-story brick building, 50x140 feet, to be erected by R. H. Wood and Frank Ireland.

Port Arthur, Texas—Business Building.—A. Goldburg and M. Terrell will each erect a three-story brick building 50x140 feet.

Portsmouth, Va.—Flat Building.—O. L. Williams will erect brick and stone building at a cost of about \$7000. Gas and electric fixtures will be installed.

Raleigh, N. C.—Building.—Barrett & Thompson, 117½ Fayetteville street, have prepared plans for mechanical building to be erected at Thaw University; three stories, 45x96 feet; brick, artificial stone; metal-shingle roof; cost \$12,500.

Raleigh, N. C.—Courthouse.—Plans submitted by H. P. S. Keller for addition to courthouse for Wake county will probably be adopted. Len H. Adams is chairman of County Commissioners.

Raleigh, N. C.—Masonic Temple.—Bids are being received according to revised plans by Charles Bryant for proposed Masonic temple, new plans bringing the expenditure within the amount on hand of \$90,000.

Richmond, Va.—Auditorium.—An appropriation of \$30,000 has been voted for the conversion of the Third market building into an auditorium to have a seating capacity of 4000. The committee has recommended for adoption the plans submitted by Noland & Baskerville.

Salisbury, N. C.—Jail and Jailor's Residence.—C. T. Bernhardt, chairman Board of County Commissioners, will receive bids until November 19 for the erection of jail and jailor's residence for Rowan county after plans by Frank P. Milburn & Co., Home Life Building, Washington, D. C.

San Antonio, Texas—Office Building.—G. Bedell Moore will erect five or six-story addition to present building, 50x137 feet; steel frame; brick and terra-cotta; steam-vacuum system; one electric freight elevator. Atlee B. Ayres prepared the plans. (Referred to last week.)

San Antonio, Texas—Skating Rink.—Incorporated: Electric Park Roller Rink Co., with \$15,000 capital stock, by Clarence Thomas, Frank D. Young, O. O. Woodman, A. H. Calkins of San Antonio and W. G. Van Vleck, Jr., of Houston, Texas.

Savannah, Ga.—Office Building.—J. W. Seny has purchased site on which it is stated a six-story building will be erected.

Scranton, Miss.—Hotel.—Estate of W. E. Frederic will erect a three-story brick hotel to cost \$40,000. Steam heat, electric lights, etc., will be installed. Architect has not been selected. E. J. Jane, president Merchants' and Marine Bank, is interested.

Sewell's Point, Va.—Exposition Building.—Zimmerman & Lester, Winston-Salem, N. C., have been awarded contract to prepare plans for building to be erected by the State of North Carolina on the Exposition grounds, and not for the erection of building as erroneously mentioned November 1. The building will be of colonial design and occupy 5000 square feet of space; cost \$15,000. Contract for construction will be let about November 15.

Sewell's Point, Va.—Exposition Buildings.—James Knox Taylor, supervising architect, Treasury Department, Washington, D. C., will open bids November 21 for constructing United States Government buildings (except the life-saving station) at the Jamestown Exposition in accordance with drawings and specifications, copies of which may be had at the office of the supervising architect at his discretion.

Shawnee, O. T.—Hospital.—The hospital building to be erected by the Shawnee Hos-

pital Association will be of fireproof construction; contains 32 rooms and basement; equipped with steam or hot-water-heating plant; gas and electric fixtures; elevators; cost \$30,000. Architect has not been engaged. Dr. J. M. Trigg can be addressed.*

Shreveport, La.—Church.—First Baptist Church is reported to erect edifice to cost between \$40,000 and \$50,000. H. A. Sumrell is pastor.

Springfield, Mo.—Courthouse.—Greene county will vote December 4 on the issuance of \$150,000 of bonds for the erection of courthouse. Address County Judge.

St. Louis, Mo.—Church.—St. Mark's German Evangelical congregation, E. H. Ellits, pastor, has purchased site, 75x114 feet, on which to erect proposed edifice. A parsonage will also be built.

St. Louis, Mo.—Office Building.—Construction work has begun on building for the Joliet Realty Co., for which building contract has been let to the James Black Masonry & Contracting Co.; eight stories; fireproof construction; cost \$1,000,580.

St. Louis, Mo.—Theater and Hotel.—Orpheum Building Co. has been incorporated with \$2500 capital stock to construct hotel and theater and the Orpheum Theater & Amusement Co. to operate same; incorporators, John J. Ryan, Albert W. Jaeger and Oscar Stifel.

Sulphur, I. T.—City Hall, Jail and Engine-house.—City is reported to erect city hall, jail and fire-engine house. Address Mayor McGinnis.

Sulphur, I. T.—Dwellings.—Dennis T. Flynn will erect a residence to cost \$5000. T. J. Hartman will erect a \$5000 residence.

Tampa, Fla.—Car Barn and Office Building.—E. C. Blake (not Burke as mentioned October 18) has contract for the erection of car barn 80x200 feet, to cost \$5000, and office building to cost \$3200 for the Tampa & Sulphur Springs Traction Co.

Texarkana, Texas—Church.—J. W. Wheeler, chairman building committee, will open bids November 15 for edifice previously reported to be erected by the Presbyterian Church after plans by Sanguinetti & Statts, Fort Worth Texas; cost \$20,000.

Texarkana, Ark.—City Hall.—City is arranging for the erection of City Hall. Address The Mayor.

Tifton, Ga.—Building.—E. E. Slack has let contract for the construction of proposed \$5000 brick building.

Vernon, Texas—Church.—Plans and specifications have been completed for \$12,500 edifice previously reported to be erected by the Baptist congregation; seating capacity 700. Address The Pastor.

Vicksburg, Miss.—Depot.—Swift Construction Co., George B. Swift, president, Chicago, Ill., has contract to erect proposed \$50,000 depot for the Yazoo & Mississippi Valley Railroad.

Washington, D. C.—Cathedral.—The board of trustees of the Protestant Episcopal Cathedral of St. Peter and St. Paul has commissioned Henry Vaughan, architect, Boston, Mass., and George F. Bodley, architect, England, to prepare plans for cathedral building to cost between \$5,000,000 and \$10,000,000.

Washington, D. C.—Dwellings.—Thomas H. Melton, builder, 19 T street N. W., will erect s.x dwellings at 223-233 B street N. E.; three stories; brick with stone trimmings; electric wiring and fixtures; sanitary plumbing; heating system; cost \$50,000; N. R. Grimm, architect, 627 F street N. W.

Washington, D. C.—School Buildings.—The Reform School, Crosby S. Noyes, president of board of trustees, Bladensburg road N. E., will receive proposals until November 29 for the construction of school buildings. Plans and specifications may be obtained from Isaac D. Porter, superintendent of the school, or Francis H. Duehay, chairman of building committee, The Burlington, 1120 Vermont avenue N. W.

Washington, D. C.—Office Building.—Chas. E. Foster, 910 G street N. W., has awarded contract to H. V. Sanford, 1321 G street N. W., for remodeling office building at 1331 and 1333 G street N. W., at cost of about \$15,000. Metal ceilings, structural iron and steel, electric wiring and fixtures, sanitary plumbing and steam-heating system will be installed, and the contractor invites subbids on this work.

Washington, D. C.—Store Building.—Dr. James R. Stafford, 7th and H streets N. E., has awarded contract to John C. Yost, 715 9th street N. E., for extensive alterations to store building at northwest corner 7th and H streets N. E. Work includes galvanized-iron cornice, iron columns, sanitary plumbing and terrazzo floors; Spelden & Spelden, architects, 705 G street N. W.

Washington, D. C.—Store Building.—Owen Owen, 423 11th street N. W., has awarded contract to Thomas H. Melton, 19 T street N. W., for remodeling store building at 1315 New York avenue N. W. Electric wiring and fixtures, sanitary plumbing and hot-water-heating system will be installed; Appleton P. Clark, Jr., architect, 605 F street N. W.

Washington, D. C.—Dwellings.—W. E. Garner, 623 M street S. W., will erect two two-story brick dwellings at 1125-1127 Robinson street S. W., to cost about \$5000.

Washington, D. C.—Dwellings.—Charles W. King, Jr., builder, 1519 Monroe street N. W., will erect two two-and-one-half-story brick dwellings with hot-air heating systems at 1521 and 1523 Oak street, Mt. Pleasant, to cost about \$6000; N. T. Haller Company, architect, Corcoran Building, 533 15th street N. W.

Washington, D. C.—Dwellings.—Wm. H. Sorrel, builder, 244 8th street S. E., will erect six dwellings at 3100-3110 18th street N. W.; three stories; brick with brownstone trimmings; electric wiring and fixtures; sanitary plumbing; hot-water heating system; slate and slag roof; cost about \$45,000; Wm. J. Palmer, architect, Warder Building, 523 9th street N. W.

Washington, D. C.—Dwellings.—Richard H. Knott, builder, 1604 E street S. E., will erect eight two-story brick dwellings with steam-heating system at 830-834 Varnum street N. W., to cost about \$30,000; M. D. Hensley, architect, 1302 F street N. W.

Washington, D. C.—Dwellings.—F. D. McAuliffe, builder, 500 D street S. E., will erect three two-story brick dwellings at 1341-1345 1st street N. W., to cost about \$5000; A. B. Mullett & Co., architects, 1411 F street N. W.

Washington, D. C.—Dwellings.—Pumphrey & Palmer, builders, 414 7th street S. W., will erect seven two-story brick dwellings at 1819-1831 4th street N. W., to cost about \$21,000; E. O. Volland, architect, 418 L street N. W.

Washington, D. C.—Dwelling.—Mrs. H. H. Melne, 224 R street N. W., has awarded contract to Allard & Appleby, 71 K street N. E., for general alterations and remodeling of dwelling at 224 R street N. W. Electric wiring and fixtures, sanitary plumbing and hot-water heating system will be installed at cost of about \$6000; Marsh & Peter, architects, 530 13th street N. W.

Weaverville, N. C.—Hotel.—The hotel reported November 1 to be erected by A. E. Robins and G. M. Robinson will be of fireproof construction and cost \$8000; Thomas Davis, Asheville, N. C., architect; G. M. Robinson, contractor.

Winfield, La.—Warehouse.—Contract has been let by the Farmers' Union Central Warehouse Co., Ltd., for a fireproof warehouse 100x150 feet.

Yatesville, Ga.—School Building.—City has voted affirmatively the bond issue previously reported for the erection of school building. Address The Mayor.

RAILROAD CONSTRUCTION.

Railways.

Atlanta, Ga.—The City Council has granted a franchise to the Atlanta & Carolina Construction Co., which proposes to build an electric railway from Atlanta to West Point and Conyers.

Angleton, Texas.—Mr. E. C. Burgess, chief engineer of the St. Louis, Brownsville & Mexico Railway, informs the Manufacturers' Record that grading is being done for a spur track from a point on the main line four and one-half miles south of Angleton, southeast one mile to sugar mills on the Retrieve Plantation, owned by Sealy, Hutchings & Co., bankers, of Galveston. Mr. Charley Heyser, principal assistant engineer, is in immediate charge of the construction.

Ashland, Ky.—A press report says that instead of building a line all the way from Ashland to the Pike county coal fields, Eugene Zimmerman of Cincinnati and H. B. Hollins & Co. of New York will build a road about 40 miles long from a connection with the Chesapeake & Ohio Railway for the purpose of developing property of the Northern Coal & Coke Co.

Baltimore, Md.—The Washington, Baltimore & Annapolis Electric Railway Co. has increased its capital stock from \$4,000,000 to \$5,250,000. The par value of the shares is \$50. The company is now building its line between Baltimore and Washington. Office is in the Maryland Trust Building. George T. Bishop is president.

Baton Rouge, La.—C. G. Vaughn, construction engineer of the Baton Rouge-Lafayette Line of the Southern Pacific, is reported as saying that all is now under contract. Track is laid from Bayou Vermillion 13 miles to the Atchafalaya swamp, and track is being laid from Vermillion bayou to Lafayette.

Belton, Texas.—Mr. Howard E. Ahrens of H. E. Ahrens & Bro., general contractors, Reading, Pa., writes the Manufacturers' Record that no extension of the Belton & Temple Traction Co.'s lines is contemplated at this time. This denies a recent press report.

Birmingham, Ala.—Concerning the report that the Birmingham Southern Railroad will construct a line from Ensley to Bessemer, Ala., an officer informs the Manufacturers' Record that no instructions to build such a line have been given. The company already has a line from Ensley to Thomas, Ala.

Birmingham, Ala.—Mr. Frank H. Crockard, general manager of the Birmingham Southern Railroad, advises the Manufacturers' Record that a six-mile extension is contemplated to develop additional coal mines. H. M. Urban of Ensley, Ala., is engineer in charge and also has charge of plans and bids.

Blackburn, O. T.—The Arkansas, Oklahoma & Northwestern Railway Co. has been chartered to build a line from Fayetteville, Ark., to Caney, Kan., 160 miles, with a branch line from Vinita, I. T., to Pawnee, O. T., 100 miles; capital \$4,000,000. The incorporators are J. K. Harris and B. F. Campbell of Fayetteville, W. C. Meekes and George H. Work of Caney, John A. Orendorff of Vinita, Z. T. Conley of Siloam Springs, Ark.; Frank Rush of Blackburn, O. T.; Frank Hudson and C. E. Vandervoort of Pawnee, O. T.

Blackwood, Va.—Reported that a railroad will be built from Blackwood to coal mines on Powell's river, about 10 miles. Charles Christy is chief engineer.

Brookhaven, Miss.—Mr. James Archbald, chief engineer of the United States Construction Co., writes the Manufacturers' Record that the Natchez & Eastern Railroad is to be 66 miles long, practically an extension of the Mississippi Central Railroad to the Mississippi river. From Brookhaven to the Homochitto river 22½ miles are under contract, as is also the Natchez end for 23 miles to Roxie, on the Yazoo & Mississippi Valley Railroad. The line will pass through Meadville, the county-seat of Franklin county.

Brownsville, Texas.—Col. Uriah Lott, promoter of the Brownsville, Hidalgo & Northern Railroad Co., is reported as saying that its success is assured and that the Mexican Government has agreed to build from Tampico to Matamoros, and also to build a bridge over the Rio Grande. E. B. Gore is chief engineer at Brownsville.

Brownwood, Texas.—A. P. Kittell is reported to be surveying a line for the Santa Fe from Coleman, Texas, to Brownwood. C. F. W. Felt is chief engineer at Galveston.

Carrizo, Springs, Texas.—Claude V. Birkhead of San Antonio, Texas, is reported as saying that right of way has been secured to build a steam railroad from Carrizo Springs to Millett, Texas, 42 miles.

Carrollton, Ala.—The Carrollton Short Line has changed its name to the Alabama, Tennessee & Northern Railroad. The line is 21 miles long from Reform, Ala., on the Mobile & Ohio Railroad, via Carrollton to Aliceville, Ala. Perhaps some further extension may be made.

Columbia, S. C.—C. R. Van Ethen of Brooklyn, N. Y., is reported as saying that the proposed South Carolina Public Service Corporation intends to build a line from Charleston to Columbia and from Augusta, Ga., to Orangeburg, S. C. Engineers are now making a survey. Mr. Van Ethen will have charge of the engineering and construction work, and A. T. Jones is the location engineer. J. J. Timmes has charge of the financial and legal end of the plan. Mr. Lawrence M. Pinckney of Charleston is said to be interested in the plan.

Dallas, Texas.—It is reported that the Northern Texas Railway Co., lately chartered, will apply for franchises in Dallas. Its line is to run from Dallas to Egan, Texas. R. P. McDonald of Fort Scott, Kan., and others are interested. F. M. Etheridge and William P. Ellison are attorneys for the company, which will first build from Dallas to a point about 20 miles west of the city.

Daytona, Fla.—The Daytona & St. Johns River Railroad Co. has decided to push work on its proposed line from Daytona to Jacksonville, Fla., 16 miles.

De Quincey, La.—J. F. Hinckley, chief engineer of the Frisco System, is reported as saying that he expects the Colorado Southern, New Orleans & Pacific line to be completed between Baton Rouge, La., via De Quincey to Houston, Texas, by April 1 next.

Fitzgerald, Ga.—Byrd Mobley and Marlon Dickson will, it is reported, organize a company to build an electric railway 15 miles long from Fitzgerald to Evergreen and the Oklawaha river.

Fort Myers, Fla.—The Seminole Power & Ice Co. will, it is reported, build an electric

railway from Fort Myers to Fort Thompson.

Fort Smith, Ark.—The Kansas City Southern Railroad Co. is contemplating a change of line which will involve the construction of considerable new mileage and the reduction of some heavy grades. The new line may be built to run through Fort Smith. A. F. Rust is chief engineer at Kansas City, Mo.

Galveston, Texas.—The Galveston Terminal Co., which proposes to build terminals at Galveston for the Yoakum lines and also for the Rock Island, has elected Michael Sweeney of Cleburne president in the place of Sam Lazarus of Houston. John Sealy is vice-president and E. R. Cheesborough is secretary and treasurer. It is expected that definite plans for construction will be arranged about November 15.

Glenville, W. Va.—Robert L. Ruddell, general manager of the Kanawha & Glenville Railway, is reported as saying that engineers are now surveying for the proposed extension of 30 miles.

Georgetown, D. C.—President Oscar G. Murray of the Baltimore & Ohio Railroad is reported as saying that within six months freight trains will be running into Georgetown from a connection with the Metropolitan Southern near Liden Station. D. D. Carothers is chief engineer at Baltimore.

Greenville, Miss.—Reported that the Greenville, Leland & Rolling Fork Railway Co. will probably not let contracts until about January 1 to build its proposed line, 61 miles long, from Greenville to Leland and Rolling Fork, Miss. Survey has been made and right of way secured. W. R. Barksdale, Memphis, Tenn., is president.

Groveton, Texas.—The North & South Texas Railroad Co. is reported to have completed about three miles of its line and to have four miles more ready for track. The line is to run from Houston northward to Groveton and Lufkin, and thence into Louisiana. W. F. N. Davis is vice-president and general manager.

Houston, Texas.—The Gulf, Colorado & Santa Fe Railway will, it is reported, build a line from Winnie, on the Gulf & Interstate Railway, to Houston, Texas. C. F. W. Felt is chief engineer at Galveston.

Hyattsville, Md.—Reported that the Washington, Patuxent River & Drum Point Railroad Co., lately incorporated by C. A. M. Wells and others, has let a contract to a New York firm to grade 22 miles from Mechanicsville, Md.

Jackson, Miss.—Reported that C. D. Smith & Co., general contractors on the New Orleans Great Northern Railroad from Smith's Ferry to Jackson, 50 miles, have sublet 13 miles of the work to Wright Bros.

Jefferson City, Mo.—The Missouri Interurban Railway Co. is reported to have surveyed its line and partly obtained right of way from Jefferson City to Sedalia, Mo., 89 miles. The engineers are H. H. Humphrey, Chemical Building, St. Louis, Mo., and B. H. Colby, Security Building, St. Louis. The officers and incorporators of the company are J. W. Mellor, Sedalia, president; W. B. Meyers, Smithton, treasurer; J. H. Gunn, Otterville; J. D. Starke, Soleville; W. K. Keren, Buncheon; A. W. Nelson, Buncheon; J. H. Gemenaden, Cedron; Baily W. Lansdown, Centertown; Henry Frick, Prairie Home. C. W. Thomas is secretary. The offices are at Jefferson City.

Johnson City, Tenn.—L. B. McCabe of Baltimore has been awarded a contract to build 11 miles of the South & Western Railway from a point in the mountains in McDowell county, North Carolina, southward.

Kansas City, Mo.—H. L. Miller, general manager of the Wabash Railroad, is reported as saying that improvements will be made to the freight terminals at Kansas City. A. O. Cunningham is chief engineer at St. Louis, Mo.

Lake Charles, La.—The Lake Charles & Northern Railroad Co. has been chartered in the interest of the Southern Pacific to build several hundred miles of line in the timber belt of Louisiana, with a main line from Lake Charles to Alexandria, where one branch will run into Shreveport and another northward. A. V. Kellogg is engineer in maintenance of way at Houston, Texas. The directors are George W. Nott of New Orleans, president; J. A. Bell of Lake Charles, vice-president. Francis Martin, John McGraw, G. G. Moore, H. B. Taylor and J. F. Blair are also reported to be interested. The line will run via De Ridder, La. It is further reported that part of the line will consist of the Louisiana & Pacific Railway, now owned by the Long-Bell Lumber Co.

Lehigh, I. T.—President Dorset Carter of the Oklahoma Central Railway is reported as saying that it will be ready to start construction from Lehigh to Paris about December 15. The line has been completed

from Lehigh to Purcell and is now being constructed between Purcell and Chickasha.

Leslie, Ark.—Reported that Dowling & McGinnigle of St. Louis, Mo., have been awarded the contract by the Allegany Improvement Co. for grading and bridging the Missouri & North Arkansas Railroad extension from Leslie to Pangburn, Ark., 75 miles. The chief engineer is W. S. Dawley, 830 Security Building, St. Louis, Mo.

Lexington, Ky.—The Lexington & Interurban Railways Co., which is building a line from Versailles to Frankfort, also proposes to build from Lexington to Richmond and Winchester. John B. MacAfee of Philadelphia, Pa., is chief engineer, and Louis Des Cognets of Lexington, Ky., is president.

Lexington, Ky.—W. A. McDowell, general manager of the Lexington & Eastern Railway, writes the Manufacturers' Record denying the report that the company would extend its line into timber land on Quicksand creek, in Breathitt county, Kentucky. He says: "We may possibly make an extension of our line in 1907."

Macon, Ga.—Mr. W. J. Massee informs the Manufacturers' Record that the Interurban Construction Co. has applied for a charter to build an electric line from Macon to Albany, Ga., the new corporation to be known as the Macon, Americus & Albany Electric Railway Co. This confirms a recent press report.

Mangum, O. T.—George D. Locke, president of the Arkansas Pacific Railway Co., Missouri Trust Building, St. Louis, Mo., writes the Manufacturers' Record that the company's proposed line is to be 1500 miles long, from Memphis, Tenn., to Denison, Texas, with branches to Mangum, O. T.; Tulsa, I. T.; Pine Bluff and Newport, Ark. The line can be built on a six-tenths of one per cent. grade with three-degree curves, and engineers are now making the location survey. It is expected to be ready to let contract about February 1. President Locke is now acting as chief engineer. The other officers are T. D. Kinman, vice-president, and James Gates, secretary and treasurer.

Memphis, Mo.—Mr. W. C. Pickings writes the Manufacturers' Record that the Iowa-Missouri Power & Traction Co. has been financed and is about ready to begin construction, Iowa, via Keosauqua and Milton, Iowa, to Memphis, Mo., and a southern extension from the latter to Mexico, Mo.; also a northern extension to Cedar Rapids, Iowa. Now 52 miles are ready for construction. J. W. Andrews is engineer.

Miami, Fla.—The Florida East Coast Railway has completed all the grading on Key Largo, 27 miles, for its Key West extension, and it is said that the grading over all the other keys is practically finished. Track-laying is to begin on Key Largo immediately.

Mobile, Ala.—Mr. John B. Foley of Chicago is reported as saying that he may build a railroad through timber land in the southern end of Baldwin county, Alabama.

Mount Pleasant, Ky.—The Swan Creek Railroad Co. has filed its charter to build a line 17 miles long from a point on the Louisville & Nashville Railroad, near Mount Pleasant, to Waverly, on Swan creek. The incorporators are J. H. Ellis, W. H. Bruce, W. A. Northcutt, John Bell Keeble and E. W. Hines.

Muskogee, I. T.—William Kenefick of Kansas City is reported as saying that he will soon begin construction on the proposed extension of the Missouri, Oklahoma & Gulf Railway to Denison, Texas, and afterwards he proposes to build a northern extension to Pittsburg, Kan. H. S. Moore is chief engineer at Muskogee.

New Decatur, Ala.—Reported that the Louisville & Nashville Railroad will enlarge its yards at New Decatur to hold 1200 additional cars.

Quitman, Ga.—At a stockholders' meeting of the South Georgia & West Coast Railway it was decided to increase the capital stock from \$65,000 to \$500,000. Some improvements may be made. J. W. Oglesby is president at Quitman.

Rutherfordton, N. C.—Mr. W. L. Clement, secretary and treasurer of the W. L. Clement Lumber Co., Cheraw, S. C., in a letter to the Manufacturers' Record confirms the report of the purchase of the Middleby Lumber Co.'s property, and says that to operate it a railroad about 20 miles long will have to be built. Definite plans are not yet formed and will not be ready for announcement before January 1.

Shelbina, Mo.—Construction work is reported begun on the line of the Shelby County Railway Co. from Shelbina to Shelbyville.

Shubuta, Miss.—The John A. Cox Lumber Co. of Vincennes, Ind., has purchased the Shubuta & Southwestern Railroad and other property of the Kaupp Lumber Co., and it is said that improvements may be made.

Tulsa, I. T.—The Rogers Southwestern Railway will, it is reported, continue its proposed line to Tulsa. J. M. Bayless and R. W. Felker of Rogers, Ark., are interested.

Uvalde, Texas.—The United Kaolin Properties Co. will, it is reported, build a railroad about 40 miles long from Uvalde to a point near Leakey, in Edwards county, Texas, although the line may be started from some other point on the Southern Pacific. Milton Wolf is president, and W. E. Bradley is secretary, both of Chicago.

Ward, La.—The Calcasieu & St. Landry Railway Co. has filed its charter to build a line from Ward, near Oakdale, La., to Eunice, La., about 30 miles. The directors are W. M. Rice and J. S. Rice of Houston, Texas; John C. Ward of Waco, Texas; W. P. Cleveland and F. A. Rice of Calcasieu parish. Of these W. P. Cleveland is vice-president, and F. A. Rice is treasurer and manager.

Woodward, O. T.—President E. P. Ripley of the Santa Fe system is reported as saying that a line 40 or 50 miles long will be built from Woodward eastward. Another report says that rights of way are now being secured by the company between Woodward and Oklahoma City. W. B. Storey is chief engineer at Topeka, Kan.

Wynne, Ark.—C. B. Bailey of Memphis, Tenn., is reported to be surveying a line for the Wynne, Newport & Western Railroad, a distance of 38 miles.

Street Railways.

Ardmore, I. T.—The Ardmore Electric Transit Co. will, it is reported, apply for a charter to build a street-car line in Ardmore. The incorporators are Capt. W. F. Whittington, Joe F. Robinson, C. L. Byrne and W. P. Poland, Ardmore. The others are Joe Myers of Paul's Valley and Messrs. Fitzgerald and Cameron of New York city.

Argenta, Ark.—Construction has begun on the Argenta street railways.

Chester, S. C.—The Chester Traction Co. will, it is reported, apply on November 30 for a charter to build an electric railway in Texas. The incorporators are J. R. Westbrook and L. L. Reading of Chester and Col. Jasper E. Rody, president of the Germania Mutual Savings Co. of Chicago.

Chickasha, I. T.—The Chickasha Railway & Electric Co., capital \$100,000, has been incorporated with the following directors: Scott Jones of Chickasha, president; W. T. Colson, vice-president; Alger Melton, secretary; C. L. Greer, treasurer, and D. L. Strong.

Columbia, S. C.—The Suburban Transit Co. has been granted a charter to build its proposed electric railway to Colonial Heights. The incorporators are Julius H. Walker, Ambrose E. Gonzales, J. Sumter Moore and Bruce W. Ravenel. The officers are: Julius W. Walker, president; J. S. Moore, vice-president, and B. W. Ravenel, secretary and treasurer.

Hattiesburg, Miss.—Reported that contract has been let to build the West End Electric Railway extension.

Jackson, Miss.—The Jackson Street Railway Co., which is double-tracking its line on North State street, will, it is reported, build another mile of double track on West Capitol street.

Lexington, Ky.—Franchises have been granted in Lexington to the Central Kentucky Traction Co. and the Bluegrass Traction Co.

Nashville, Tenn.—Stockholders of the Nashville Railway & Light Co. are to meet on November 10 to approve an issue of \$15,000,000 of bonds, part of which will be used for improvements.

Norfolk, Va.—The Norfolk & Atlantic Terminal Co.'s electric railway from Norfolk to the Jamestown Exposition and Pine Beach, six miles, is reported purchased by the Norfolk & Portsmouth Traction Co., and it is said that improvements will be made. E. C. Hathaway is vice-president and general manager of the traction company.

Richmond, Va.—The Richmond & Henrico Railway Co. has applied for a charter, and proposes to take over the Citizens' Rapid Transit Co. and to build a railroad from the same points in the city and to the same points in the county. The officers are: W. S. Forbes, president; W. W. Jenkins, vice-president, and John C. Hagan, secretary-treasurer, all of whom were interested in the Transit Company.

Tampa, Fla.—The Manufacturers' Record is informed that the Tampa-Sulphur Springs Traction Co. has completed several miles of its track for an electric railway between Tampa and Sulphur Springs.

Timber Land Offered.

Four thousand acres of original-growth hardwood timber land in North Carolina are offered for sale by W. M. Pratt of Marion, N. C.

MACHINERY, PROPOSALS AND SUPPLIES WANTED.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The Manufacturers' Record has received during the week the following particulars as to machinery that is wanted.

Bank Furniture.—T. M. Smiley, president Bank of Raphine, Moffatts Creek, Va., wants to purchase second-hand bank furniture.

Boat Machinery.—Central American Naval Stores Co., H. L. Anderson, president, Ocala, Fla., wants boat machinery.

Boiler.—Peacock's Iron Works, Selma, Ala., wants a 60-inch by 16-foot second-hand boiler. (See "Engine and Boiler.")

Bottling Works.—Union Central Light & Ice Co., Hubbard City, Texas, wants prices on bottling-works equipment.

Bridge Construction.—Bids will be received until December 15 for the construction of a 600-foot steel highway bridge across the Caney Fork river, about three miles from Carthage, Tenn., according to plans and specifications on file in office of W. E. Myer, Carthage, Tenn.; usual rights reserved.

Bridge Construction.—Anne Arundel County Commissioners, Annapolis, Md., will let contract November 13 for the construction of a reinforced concrete or steel bridge at Severn run, for which plans and specifications can be obtained from Irving D. Ireland, 93 Market street, Annapolis, Md., on deposit of \$5. Also will let contract at the same time for a wooden, steel or concrete bridge at present site of Bowie bridge near Annapolis Junction, in the Fourth district; span about 40 feet, width about 16 feet, height about 10 feet; specifications to accompany proposal. Also at the same time for a wooden pile bridge at Tracey's Landing, for which plans and specifications can be obtained from Irving D. Ireland, 93 Market street, Annapolis, on deposit of \$5. Bids must be accompanied by evidence that bidder has performed work of a like character. Usual rights reserved. W. W. Webb is clerk.

Bridge Construction.—John B. Ashe, County Auditor, Houston, Texas, will receive bids until November 14 for the construction of a bridge across Big Cypress creek, on West Montgomery road, according to plans and specifications on file in office of County Engineer, Houston, Texas. Usual rights reserved.

Building Equipment.—H. V. Sanford, builder, 1321 G street N. W., Washington, D. C., wants subbids on metal ceilings, structural iron and steel, electric wiring and fixtures, sanitary plumbing, steam-heating system, to be installed in office building which he has contract to remodel at 1331 and 1333 G street N. W.

Cement.—Atlanta Land Improvement Co., 405 Century Building, Atlanta, Ga., wants Portland cement.

Cement.—Bids will be received until November 12 at the office of Henry B. F. Macfarland, Henry L. West, John Biddle, Commissioners, Washington, D. C., for furnishing the District of Columbia with 5000 barrels, more or less, of Portland cement in wood and 5000 barrels, more or less, of Portland cement in cloth. Specifications, blank forms of proposal and all necessary information may be obtained on application.

Coal-handling Plant.—Terry Coal & Coke Co., Hopkinsville, Ky., wants quotations, catalogues, etc., on coal-storage and elevator plant for retail coal business, with bins and machinery to handle all grade of coal by machinery from cars and unload from bins into wagons.

Concrete-block Machinery.—J. M. Willson, Jr., Kissimmee, Fla., wants machinery for manufacturing concrete blocks.

Concrete Mixers.—Atlanta Land Improvement Co., 405 Century Building, Atlanta, Ga., wants concrete mixers.

Concrete Mixers.—Remington Oil Engine Co., No. 41 Park Row, New York, N. Y., wants catalogues of concrete mixers.

Concrete Work.—See "Electric-light Plant."

Construction Work.—McCabe & Steen Construction Co., Irving, Texas, have some good drag scrapers and wheeler work to sublet on

the Rock Island between Irving and Carrollton, Texas, at good prices, and will be let to suit size of outfit.

Cotton-mill Machinery.—W. C. Frost, Athens, Ala., wants estimates on machinery for 5000-spindle yarn mill.

Ditching Machine.—D. B. Greathouse, Lewisport, Ky., wants a steam ditching machine for drain tile.

Dredges.—Bids will be received until December 11 at the office of D. W. Ross, general purchasing officer Isthmian Canal Commission, Washington, D. C., for furnishing, delivering and completing, free of all charges, at either Cristobal (Atlantic port) or La Boca (Pacific port), Isthmus of Panama, either one or both of the two suction dredges (Circular 335). Blanks and general information relating to circular may be obtained at the office of the general purchasing officer or the offices of the assistant purchasing agents, 24 State street, New York; Custom-house, New Orleans, La.; 1086 North Point street, San Francisco, Cal.; and 410 Chamber of Commerce Building, Tacoma, Wash.; also from Chief Quartermaster, Chicago; Depot Quartermaster, St. Louis; Depot Quartermaster, Jeffersonville, Ind.; Chief Quartermaster, Atlanta, Ga., and the Commercial Club, Mobile, Ala.

Electrical Equipment.—Sanford Electric Light & Power Co., W. H. Thomson, manager, Sanford, N. C., wants prices on equipment for electric-light and power plant.

Electrical Equipment.—Chattanooga Steam Laundry, 101 East Montgomery avenue, Chattanooga, Tenn., wants quotations on 300-light dynamo.

Electrical Equipment.—Remington Oil Engine Co., 41 Park Row, New York, N. Y., wants catalogues of dynamos.

Electric-light Plant.—Leon Goodman, chairman on electricity, Kribe Building, Lynchburg, Va., will receive bids until November 10 for apparatus, machinery and supplies to form a complete arc-lighting plant driven by both steam and water-power. Items include structural steel and concrete work, alternating-current generators, switchboard, water-wheels, high-speed engines, boilers, pumps, piping, steel stack, rope drivers, friction clutches, iron stairways and ladders, arc lamps, regulators, lamp-suspension appliances, W. P. wire and all necessary fittings and appliances. Plans and specifications may be seen and proposal forms obtained from the office of Lamar Lyndon, consulting engineer, 80 William street, New York. A deposit of \$10 will be required to secure plans and specifications. Usual rights reserved.

Elevator.—D. B. Greathouse, Lewisport, Ky., wants a steel grain elevator, 150,000 capacity.

Elevator.—Bids will be received until December 1 at the Bureau of Yards and Docks, Navy Department, Washington, D. C., for installing an electric elevator in building No. 5, navy-yard, Charleston, S. C. Plans and specifications can be seen at the bureau or will be furnished by the commandant of the navy-yard, Charleston, S. C.; Mordecai T. Endicott, chief of bureau.

Elevator Machinery.—See "Coal-handling Plant."

Engine.—R. E. Bowen, Cotton Plant, Ark., wants an eight-horse-power gasoline engine.

Engine.—Racine General Manufacturing Co., 1415 Junction avenue, Racine Junction, Wis., wants a good second-hand engine from 80 to 100 horse-power.

Engine.—Atlanta Land Improvement Co., 405 Century Building, Atlanta, Ga., wants gasoline engine.

Engine.—H. M. Lipe, Matthews, N. C., wants a second-hand portable gasoline engine from 12 to 20 horse-power or one suitable to mount, not to weigh over 2500 or 3000 pounds, complete ready for work.

Engine.—White-Blakeslee Manufacturing Co., C. B. White, president, Birmingham, Ala., wants a 50-horse-power second-hand steam engine in good condition. State make, condition and price f. o. b. cars point of destination, with lowest freight rate to Birmingham.

Engine and Boiler.—Peacock's Iron Works, Selma, Ala., wants a 100-horse-power engine and a 60-inch by 16-foot good second-hand boiler.

Engines.—Union Central Light & Ice Co., Hubbard City, Texas, wants prices on producer-gas engines, crude-oil engines, etc.

Engines.—Central American Naval Stores Co., H. L. Anderson, president, Ocala, Fla., wants marine engines.

Engines and Boilers.—See "Electric-light Plant."

Fertilizer Machinery.—A. A. Northern, Talladega, Ala., wants machinery for making fertilizers.

Forgings.—Arthur Koppel Company, 1001

Machesney Building, 225 Fourth avenue, Pittsburg, Pa., wants catalogues on dropped forgings.

Grain Elevator.—See "Elevator."

Grinding Mill.—Pinson Pottery Co., Pinson, Tenn., wants a pug mill to grind clay for pottery; to grind clay for either turning wheel or jolly.

Heating Apparatus.—J. M. Bramlett, Gulfport, Miss., wants estimates on steam-heating apparatus.

Heating Apparatus.—Wesley B. Connolly, manager Seven Springs Farm and Industrial School, Penland, N. C., wants prices on hot-air heating apparatus.

Heating Apparatus.—Commissioners' Court of Dallam county, Texas, will receive plans, specifications and bids until November 12 to install steam heat in courthouse and jail; usual rights reserved; J. P. Inman, County Judge, Dalhart, Texas.

Heating Apparatus.—Bids marked "Proposals for Heating System at Arlington National Cemetery" and addressed to Capt. H. L. Pettus, Quartermaster, U. S. A., in charge of depot, will be received at the General Depot of the Quartermaster's Department, Washington, D. C., until November 30 for installing heating system at Arlington (Va.) National Cemetery. Specifications can be had and information will be furnished on application. United States reserves usual rights.

Ice Machinery.—G. W. M. Taylor, Ashland, Va., wants ice machinery.

Ice Machinery.—Union Central Light & Ice Co., Hubbard City, Texas, wants plate-ice machines.

Iron and Steel.—Arthur Koppel Company, 1001 Machesney Building, 225 Fourth avenue, Pittsburg, Pa., wants catalogues of cast-chilled-iron and cast-steel wheels for narrow gauge.

Iron Trucks.—Remington Oil Engine Co., No. 41 Park Row, New York, N. Y., wants catalogues of iron trucks for mounting portable engines.

Jail Builders.—J. M. Bramlett, Gulfport, Miss., wants addresses of jail builders.

Lighting Fixtures.—J. M. Bramlett, Gulfport, Miss., wants estimates on gas and electric-light fixtures and wiring.

Lagging Machinery.—See "Pipe-covering Machinery."

Laundry Machinery.—G. W. M. Taylor, Ashland, Va., wants laundry machinery.

Lead Mills.—Jones Art Glass Co., 86 Central avenue, Atlanta, Ga., wants addresses of manufacturers of mills for making glazier lead.

Levee Work.—Board of Commissioners Red River, Atchafalaya & Bayou Boeuf Levee district, Alexandria, La., will receive bids until November 23 for the following-named work for improving drainage, to be done in accordance with plans and specifications prescribed by the Board of State Engineers of Louisiana: No. 7, Swazey lake to Bayou Courtableau, St. Landry parish; \$1000 deposit required; \$10,000 bond required. For further information, blank forms for making proposals, etc., apply to Board of State Engineers, New Orleans, La., or to E. G. Richard, president, and J. R. Thornton, secretary.

Machine-shop Equipment.—Arthur Koppel Company, 1001 Machesney Building, 225 Fourth avenue, Pittsburg, Pa., wants catalogues of general machine structure and forge-shop equipments.

Machine-shop Tools.—E. A. Jenkins Motor Co., 1216 Main street, Columbia, S. C., wants garage machinery, accessories, equipment and supplies.

Machine Tools.—C. H. Turner, Statesville, N. C., wants one 30-inch or 36-inch engine lathe with 8-foot to 15-foot centers; one 16-inch or 24-inch or 28-inch shaper, ground; one 26-inch, 28-inch or 30-inch drill press with lock gear, slide head and power feed; one 20-inch plain drill press; one emery stand.

Malleable Iron Work.—Lexington Metal Bed Co., Lexington, N. C., wants to contract for malleable iron work.

Marine Engines.—See "Engines."

Miscellaneous Supplies.—Bids will be received until November 21 at the office of D. W. Ross, general purchasing officer, Isthmian Canal Commission, Washington, D. C., for furnishing by steamer on dock at Colon (Atlantic port) or La Boca (Pacific port), Isthmus of Panama, iron pipe valves, iron washers, nuts, chain blocks, turnbuckles, locks, door hardware, hooks and eyes, habbitt metal, garnet paper, lubricating grease, oils, paints, etc. Blanks and general information relating to circular (No. 339) may be obtained from office of general purchasing officer, assistant purchasing agents, 24 State street,

New York; Custom-House, New Orleans, La.; 1086 North Point street, San Francisco, Cal., and 410 Chamber of Commerce Building, Tacoma, Wash.; also from chief quartermaster, Chicago; depot quartermaster, St. Louis; depot quartermaster, Jeffersonville, Ind.; chief quartermaster, Atlanta, Ga., and the Commercial Club, Mobile, Ala.

Mixing Machines.—R. J. Woodcock, Asheville, N. C., wants addresses of manufacturers of mortar-mixing machines.

Office and Store Fixtures.—H. M. Wade, treasurer Cochran Show Case Co., Charlotte, N. C., wants to correspond with manufacturers relative to securing agency for desks, office chairs, display stands, files and all kinds of office and store fixtures.

Operating-room Supplies.—Dr. J. M. Trigg, Shawnee, O. T., wants prices on supplies for operating-room in hospital.

Paving.—The Baltimore (Md.) Board of Awards, City Hall, will receive bids until November 14 to grade, curb, gutter and pave with macadam portion of Massachusetts avenue. Specifications and proposal sheets may be obtained from Commissioners for Opening Streets, Hoen Building, Lexington and North streets.

Paving.—O. Broussard, Mayor, Rayne, La., will let contract November 22 for the construction of 40,000 square feet of cement sidewalks and 7000 feet of brick curbing. Plans and specifications will be furnished by R. B. Boettcher, engineer, Rayne, La.

Pipe-covering Machinery.—W. I. Middleton, receiver, National Asbestos Co., Hollywood, Ga., wants addresses of manufacturers of machinery and moulds for making asbestos pipe covering and lagging, also boiler lagging; also wants to correspond with parties familiar with the manufacture of this product.

Piping.—See "Well Drilling."

Piping.—Weatherford Gaslight, Heat & Power Co., Weatherford, Texas, will probably want to purchase gas mains.

Piping.—See "Electric-light Plant."

Plumbing.—J. M. Bramlett, Gulfport, Miss., wants estimates on sanitary automatic closet system.

Pumping Engines.—Davis Foundry & Machine Works, Rome, Ga., wants dealers' prices on hot-air pumping engines.

Pumping Plant and Equipment.—The Baltimore (Md.) Board of Awards, City Hall, will receive bids until November 28 for furnishing complete mechanical equipment for sewerage-system pumping plant. This includes three 27,500-gallon capacity pumps. Plans and specifications may be obtained from Sewerage Commission, Calvin W. Hendrick, chief engineer, 994 American Building, Baltimore and South streets, on and after November 17.

Pumps.—See "Electric-light Plant."

Railway Equipment.—Arthur Koppel Company, 1001 Machesney Building, 225 Fourth avenue, Pittsburg, Pa., wants light rails with accessories, bolts, nuts, etc.

Railway Equipment.—Gibbes Machinery Co., 391 W. Gervais street, Columbia, S. C., wants about two miles of 12-pound relaying rails, complete, with spikes and joints. Quote prices f. o. b. Garland, N. C.

Refrigerating Machinery.—Union Central Light & Ice Co., Hubbard City, Texas, wants prices on ice-cream refrigerating machinery.

Railway Equipment.—Westover Paper Co., Richmond, Va., wants tank cars, 5000 or 6000 gallons capacity, for immediate use.

Railway Equipment.—Colossus Gold Mining & Milling Co., A. J. Moore, general superintendent, Waxhaw, N. C., wants 200 tons 56-pound relaying rails or 215 tons 60-pound relaying rails in good condition with fish joints; to be delivered at junction of Carolina Mineral Railroad and Seaboard Air Line, midway between Waxhaw and Mineral Springs, N. C.

Railway Equipment.—O. R. Whitney, 39 Cortlandt street, New York, N. Y., wants two 36-inch-gauge locomotives with tenders for service on a narrow-gauge road, 65-ton standard-gauge freight locomotive, 7 standard-gauge passenger coaches, 2 baggage, mail and express cars, three straight baggage cars, standard gauge.

Railway Equipment.—E. S. Hagan, Christiansburg, Va., wants 200 tons of relay T rails, 56-pound, with angle bars.

Road Machinery.—A. C. Sorrel, Clerk Spalding County, Griffin, Ga., will receive prices on all kinds of improved road machinery.

Roofing.—Wesley B. Connolly, manager Seven Springs Farm and Industrial School, Penland, N. C., wants prices on 46 squares of metal roofing.

Roofing.—Brady Construction & Engineering Co., Parkersburg, W. Va., wants to con-

tract for some composition roofing work at Bluefield, W. Va.

Roofing.—Atlanta Land Improvement Co., 405 Century Building, Atlanta, Ga., wants felt or paper roofing.

Safes.—H. M. Wade, treasurer Cochran Show Case Co., Charlotte, N. C., wants to correspond with manufacturers relative to securing agency for safes.

Sawmill.—Azel Ford, 290 Bond Building, Washington, D. C., wants to purchase a band mill of 30,000 feet capacity per day of 10 hours; second-hand.

Scales.—Atlanta Land Improvement Co., 405 Century Building, Atlanta, Ga., wants scales.

School Furniture.—Wesley B. Connolly, manager Seven Springs Farm and Industrial School, Penland, N. C., wants prices on seating and other furniture for schoolrooms.

Sewerage System.—Bids will be received until November 27 by Henry B. F. Macfarland, Henry L. West, John Biddle, Commissioners, Washington, D. C., for constructing sewers in the District of Columbia. Forms, specifications and necessary information may be obtained at Room 43 District Building, Washington, D. C.

Shafting.—C. H. Turner, Statesville, N. C., wants 50 feet 1 15-16 or 2 3-16 shafting with couplings and hangers.

Shipbuilders.—Central American Naval Stores Co., H. L. Anderson, president, Ocala, Fla., wants estimates on the construction of seagoing tugs and barges.

Storage Plant.—See "Coal-handling Plant."

Structural Steel.—G. Bedell Moore, San Antonio, Texas, wants bids on steel for the construction of five or six-story office building.

Structural Steel.—See "Electric-light Plant."

Surgical Instruments.—See "Operating-room Supplies."

Tank and Tower.—Baltimore (Md.) Board of Awards, City Hall, will receive bids until November 14 for erecting complete steel tower and cypress tank at the Baltimore Infectious Disease Hospital. Plans and specifications may be obtained from office of Hospital Commission.

Tank Cars.—See "Railway Equipment."

Tobacco Machinery.—Farmers' Co-operative Tobacco Prizing Co., K. J. Marshall, president, Brookneal, Va., wants prices on machinery for steaming and drying tobacco; daily capacity 8000 to 10,000 pounds.

Typewriters.—H. M. Wade, treasurer Cochran Show Case Co., Charlotte, N. C., wants to correspond with manufacturers relative to securing agency for typewriters.

Watchman's Clock.—Cordesman-Rechtin Company, Butler street, Cincinnati, Ohio, wants a time-recording clock.

Well Drilling.—Envelopes marked "Proposals for Sinking Six-inch Tubular Deep Well, Fort Carroll, Md.," and addressed to First Lieut. J. A. Thomas, A. C. Q. M., Fort McHenry, Md., will be received until November 16 for furnishing material and labor required for sinking six-inch tubular deep well at Fort Carroll, Md. Information furnished on application. United States reserves usual rights.

Well Drilling.—City of California, Mo., W. C. Fluke, mayor, will let contract November 19 for furnishing casing and sinking an eight-inch well approximately 200 feet deep; contractor to furnish appliances for pumping and testing well; Burns & McDonnell, Dwight Building, Kansas City, Mo., engineers.

Woodenware Machinery.—Eugene Mathews, Clifton Forge, Va., wants machinery for manufacturing butter trays, baskets, etc.

Woodworking Machinery.—Frank Wright, Cave Springs, Ga., wants a four-side molder, four or six inches.

To Build Wilkinson Turbines.

The Wilkinson Turbine Co., which will manufacture the Wilkinson steam turbines at the works of the American & British Manufacturing Co., Providence, R. I., has completed its organization. Its directors are closely identified with the International Power Co., to which the new company will be subsidiary. Joseph H. Hoadley of New York will be chairman of the board of directors. The other officers are: President, Edward K. Hill, Providence, R. I.; vice-president, J. M. Dewberry, Birmingham, Ala.; treasurer, Alfred H. Hoadley, Providence, R. I., and secretary, E. C. Ott, New York. Preparations for building the new turbine have been well advanced, and it is expected that the engine will be on the market soon. Tests have demonstrated to the inventor and to those interested financially that the turbine possesses features which will make it in demand in the field of power equipment.

INDUSTRIAL NEWS OF INTEREST

Timber Land on Market.

Purchasers of timber lands are invited to write to the Montezuma Land & Lumber Co. of Christiansburg, Va., regarding its offerings.

Southern Plantations for Sale.

Two old-time Southern plantations and other farm properties containing plenty of timber are offered for sale by N. A. Gregory, Chase City, Va.

A Hotel Opportunity.

A new hotel of 55 rooms in a large city is offered to let. The lease is said to offer a good opportunity for investment. Address F. Beyer, 1175 Broad street, Newark, N. J.

Lumber for Consumers.

A certain lumber buyer wants to purchase lumber for consumers of Georgia and Alabama long-leaf yellow pine. Interested parties can address No. 22, care Manufacturers' Record.

A Manufacturing Investment.

An established manufacturing enterprise said to be operating with good profit in Georgia is offered for sale. Particulars can be obtained from F. R. Graham, Bainbridge, Ga.

Mineral and Timber Land.

Southern mineral and timber lands now offered for sale include properties under control of R. E. Prince, Raleigh, N. C. He offers one tract of 1400 acres, which, it is said, will cut 10,000,000 feet of lumber.

Big Order for Kaolin.

A big order for kaolin has been received by the Hart County Oil & Mineral Co. It calls for 8000 cars of kaolin, this clay to be taken from the company's mines near Bonneville, Ky., and shipped to Chicago.

Kentucky Coal Lands.

There is a 900-acre tract of coal land in Southeastern Kentucky, on a new railroad, offered for sale. This property is said to be available for immediate development. For details address No. 23, care Manufacturers' Record.

Arthur Koppel Company.

The Arthur Koppel Company, industrial railway equipment, from its offices in Pittsburgh, Pa., announces its change of street address from 1601 Machesney Building to 225 Fourth avenue. All communications should be sent to the new address.

An F. A. Clegg Contract.

A big contract has been awarded to Messrs. F. A. Clegg & Co., Inc., heating and ventilating apparatus, Louisville, Ky. It calls for all the pipe work for the new power plant of the Louisville Lighting Co. at Louisville, and the contract price is about \$26,000.

Installing Russell Engines.

An addition consisting of a 400-horse-power four-valve semi-Corliss engine, boilers, etc., is being installed at Piedmont, W. Va. This contract was obtained by the Russell Engine Co. of Massillon, Ohio, which company had already been represented with its engine for several years in the station at Piedmont.

Big Furniture Contract Awarded.

It is interesting to note that contract for supplying the furniture for the new Jefferson Hotel at Richmond, Va., has been awarded to Messrs. Charles G. Jurgens' Sons of that city. This contract amounts to about \$30,000 and calls for parlor and chamber furniture and carpets.

To Represent Manufacturers.

An experienced civil engineer wants to represent manufacturers desirous of disposing of their products to cotton mills and to cities in Middle Virginia and North Carolina. Manufacturers wishing to investigate this opportunity for representation can address Julian A. Hall, Danville, Va.

An Available Factory Site.

Manufacturers who may be seeking a factory site are invited to write the South Side Manufacturing Co., Petersburg, Va. This company offers a large site in Petersburg, 200 feet square, with brick chimney, brick boiler-house, two-story factory building and other structures, connected with Seaboard Air Line.

Harbison-Walker Interests.

The Harbison-Walker Refractories Co. of Pittsburgh, Pa., has taken over the selling organization of the Portsmouth Harbison-Walker Co., and in the future all orders of

brick, etc., made by the Portsmouth Harbison-Walker Co. will be sold by the Harbison-Walker Refractories Co. direct from its Pittsburgh offices.

Manning, Maxwell & Moore.

It is announced that Manning, Maxwell & Moore, Inc., has removed offices at Birmingham from 816 Woodward Building to 518 and 519 Woodward Building, and that any inquiries sent to Atlanta, Ga., will also be taken care of promptly. This company offers railway and machinists' tools and supplies, electric traveling cranes, etc.

Link-Belt Company in St. Louis.

Buyers of conveyors, silent chains for conveying equipment and other mechanical appliances of that nature will be interested to know that the Link-Belt Company of Philadelphia has established an office at 913 Missouri Trust Building, St. Louis. Mr. E. C. Berghoeffer, an engineer of long experience with the company's Chicago establishment, is in charge at St. Louis.

Sawmill, Dynamo and Dry-Kiln.

Manufacturers who may be in need of a band-saw mill of 50,000 feet capacity with filing-room equipment, a 10-acre-light dynamo with 15-horse-power Westinghouse engine, or a dry-kiln heating outfit are advised that three equipments of this character are offered for sale by a well-known Southern lumber company. The machinery is said to be in the best of condition. For details address Vendor, care of Manufacturers' Record.

Power Cranes for Sale.

A number of power cranes are being offered for sale. They include an electric crane of 30 tons capacity, two of 30 tons each, and three 20-ton square-shaft cranes. These cranes can be seen in actual operation at the plant where they are now being used. Prospective purchasers wanting full information can obtain details and blueprints showing general arrangement by addressing the Pennsylvania Iron Works Co., 50th street and Lancaster avenue, Philadelphia.

Manager for Hitner's Sons.

Mr. William B. Ilko, who has been employed for 12 years by Messrs. Henry A. Hitner's Sons of Philadelphia, dealers in scrap iron and metals, has been appointed general manager of the New York office at No. 32 Broadway. He will be pleased to receive any correspondence relating to scrap iron, metals, second-hand machinery, railroad equipment, etc. Messrs. Hitner's Sons are well known in the trade as dismantlers of railroads, buildings, viaducts, bridges, battleships, steamships, etc.

Orders for Pneumatic Tools.

That workers with pneumatic tools are appreciating the special products of the Chicago (Ill.) Pneumatic Tool Co. is indicated in that company's report of recent orders filed. It is stated that up to October 25 the orders showed an increase of 47 per cent. over the same period of 1905 and an increase over September of 37 per cent. The increase for the first nine months of the year over the same period of 1905 is 27 per cent. Last January the company had 8900 active customers on its books, and up to October 1 had added 1590 more.

Consolidation, Fairmont, Somerset Companies.

Mr. F. W. Wilschire, offices in New York, general manager of sales the Consolidation Coal Co., Fairmont Coal Co., Somerset Coal Co., announces that C. Von H. Kalkmann is appointed assistant general manager of sales of the companies named, with headquarters in Continental Trust Building, Baltimore, Md. Mr. Kalkmann, from his office in Baltimore, announces that E. P. Collins has been appointed manager of the Baltimore office of the companies, headquarters in the Continental Trust Building.

Lewis T. Kline, Excelsior Machinery.

Mr. Lewis T. Kline, proprietor of the Alpena Industrial Works, Alpena, Mich., has just equipped a large excelsior plant for the Coffeyville (Kan.) Excelsior Manufacturing Co. The machinery installed consists of three Kline's "1904" improved eight-block excelsior machines, one Kline's 18x22 rebounding steel-lined baling press and knife and spur grinders, and cutoff saw manufactured by L. T. Kline. The Auburn (Ind.) Excelsior Co. of Auburn, Ind., has added to its plant one of Kline's "1904" eight-block excelsior machines. Mr. Kline has orders ahead for his machines to keep his plant busy until the first of next year.

Concrete Reinforcement for the South.

The Southern demand for concrete reinforcement materials is being given especial attention at this time by the Buffalo Steel Co. of Tonawanda, N. Y. This company manufactures both plain rounds and squares and twisted squares for concrete reinforcement, and now that winter will interfere considerably with building construction in other parts of the country, it is giving especial attention to the South, because there the climatic conditions permit all kinds of building during the entire year. The Buffalo Steel Co. has greatly increased its facilities for concrete reinforcement materials and is prepared to make prompt shipments on orders.

Orders for Voltax.

The New York Central Railroad is placing further orders with the Electric Cable Co. of 17 Battery place, New York, for Voltax, the liquid compound to be used as an insulating and waterproofing material in connection with the third-rail system near High Bridge, New York. Among other users of Voltax for this purpose are Westinghouse-Church-Kerr Company, on galvanized cables; Interborough Rapid Transit Co., as a waterproofing material on galvanized sheds and outhouses, and American Insulating Machinery Co. of Philadelphia, on the framework of insulating machines.

Star Corundum Wheel Co.

Continued demands for the emery and corundum wheels manufactured by the Star Corundum Wheel Co. make it necessary to enlarge the plant at Detroit, Mich. The company has purchased site whereon it will erect a 170x175-foot fireproof building of reinforced concrete and steel, and with the new plant will have three or four times its present capacity. Three processes are used—the vitrified, silicate and elastic. The Star wheels are sold in all parts of the world. Mr. Reuben Kempf is chairman of the company and John R. Kempf is secretary-treasurer.

Sale of Industrial Property.

An industrial property located in Arkansas will be offered for sale publicly at Mammoth Spring, Ark., on December 11. It comprises mill with daily capacity of 500 barrels of flour, cut-stone dam 120 feet long by 14 feet high, developing about 500 horse-power; storage capacity for 60,000 bushels of grain, warehouses, water-power of 300 horse-power leased for a term of years, 2000 acres of land controlling water rights and capable of developing additional power, a four-story modern hotel, etc. For full details address Hunsdon Cary or Wilkerson & Manogue of Memphis, Tenn.

The Paul Steam System.

The Paul system of steam heating is in extensive use on heating and drying work throughout the South, probably 3000 plants having been equipped. Active building construction throughout this section is increasing the demand for the Paul system of equipment, and its manufacturers are taking steps to meet the trade with every possible facility. The Automatic Heating Co., 17 Battery place, New York, furnishes the Paul steam system for heating and drying. It has located an office at 405 American Building, Baltimore, in order to give additional attention to Southern contracts.

A Schieren Incident.

On October 27 there was unveiled in New York a tablet placed on the new Schieren building at Ferry and Cliff streets. The tablet reads: "The Schieren Building, erected 1905." This site, a part of the historic "Old Swamp," formerly the northernmost boundary of the city, and largely devoted to tanneries, has been occupied for more than a century by hide and leather trades. In excavating for this building old tan vats were found in a good state of preservation containing tanbark over 100 years old. Messrs. Charles A. Schieren & Co., manufacturers of belting, occupy the new building.

The Atlanta Utility Works.

Among designers and manufacturers of improved cotton-oil machinery the Atlanta Utility Works is prominent. This company has an extensive plant at East Point, Ga. It announces that in order to accommodate its increasing trade offices and exhibition rooms have been established at 54 West Mitchell street, Atlanta, Ga. In this location the company will show its own line of machinery and intends, in addition, to handle engines, boilers, dynamos, motors, belting, shafting, pulleys, screw conveyor and conveyor fittings, wire cloth, perforated metals and other manufactures needed by the oil-mill trade. The Atlanta Utility Works had so many orders for seed cleaners, shakers and universal separators during the

summer that it was behind hand in shipping, but is now prepared to furnish any of its products promptly.

Contracts for Art Glass.

Many buildings being erected throughout the South, especially church structures, need art glass, and contracts are being awarded frequently. Some important orders of this character have recently been received by the Jones Art Glass Co. of Atlanta, Ga. This company has contract for the First M. E. Church at Dalton, Ga., and at Kingston, Ga.; Wheat Street Baptist Church, Atlanta; Presbyterian Church, Red Springs, N. C., and St. Luke's M. E. Church, Wilmington, N. C. It is also doing quite a lot of glass work for residences in the South. The Jones Art Glass Co. wants addresses of manufacturers of mills for making glazier's lead.

The Flask-Type Condenser.

The Atmospheric Condensation Co., 724 Main street, Kansas City, Mo., a description of whose flask-type condenser recently appeared in the Manufacturers' Record, says the plan of producing crystal ice without reboiling has attracted considerable attention. It has recently sold to the Thibodeaux (La.) Ice & Manufacturing Co. a two-flask battery of the Pennell flask-type condenser, each being eight feet by twelve feet six inches. This installation was for a 40-ton plant. Another sale not so large, but of equal relative importance, was for the seven-ton plant of the Tusculumbia (Ala.) Ice Factory, where a single-flask condenser seven feet by five feet was used.

Representing Manufacturers.

Mr. Edw. O. Richardson, mentioned recently as having established an office at Atlanta, Ga., advises that he is now representing the following manufacturers, whose products are known the country over: Shelby (Ohio) Electric Co., incandescent lamps of all types; Norton Electrical Instrument Co., Manchester, Conn., voltmeters and ammeters; Kuhlman Electric Co., Elkhart, Ind., transformers; Sumter (S. C.) Telephone Manufacturer-different qualities are presented. Photographic views of large manufacturing plants and other buildings covered with "J.-M." roofings are shown, as well as illustrations of the roofings and accompanying materials manufactured by the H. W. Johns-Manville Company.

Of Interest to Water-Works Engineers.

Water-works engineers desirous of being informed regarding the latest improved materials for their use should investigate the lead wool manufactured by the New York Lead Wool Co., 93 Nassau street, New York. This product is not a substitute for lead, but it is lead cut in fine fiber. These fibers are put into the joint in the same way as yarn. The lead is being caulked from the yarn up, not only at the outside. It is stated the result is an absolutely tight and perfect joint that will never leak. Using lead wool means, the company states, no more melting of lead, no more waste of material, calking may be done in wet grounds or on rainy days, joints may be made up and calked under water.

Blakeslee Manufacturing Co.

Industrial activity is causing a steady demand, among other products, for modern steam pumps. One of the well-known manufacturers of steam pumps is the Blakeslee Manufacturing Co. of Duquoin, Ill., established in 1862. Since then the company has been recognized as one of the foremost manufacturers in its line, and with the growth of pumping industries it has introduced a complete line of both single and duplex machines. In addition it makes jet and bilge pumps, air compressors, vacuum pumps, mining pumps and a portable pump with boiler that has many points of advantage. The Blakeslee industry has shown a steady growth, and E. T. Blakeslee, the treasurer, said recently that during the past four months the increase has been greater than during any period since the inception of the company.

Weinman Pumping Machinery.

The almost endless variety of uses for pumping machinery, to which new ones are added each year, makes it necessary for the progressive manufacturer to add to product and make such changes as are necessary to meet the new conditions arising. Such a manufacturer is the Weinman Machine Works of Columbus, Ohio. This company is presenting its No. 10 catalogue, calling attention to numerous additions to its line of pumps, including power pumps, both vertical and horizontal, designed especially for direct connection with electric motors. As all lines are constantly being added to, a com-

ing Co., telephones; Safety-Armorite Conduit Co., Pittsburg, Pa., iron conduits; Elkin (N. C.) Machinery Co., painted oak pins and brackets, and Otto Bunge, Indianapolis, Ind., leather goods. Samples of almost all of these goods can be seen at Mr. Richardson's office, No. 1426 Empire Building, Atlanta. Prospective purchasers will find it to their advantage to get quotations from Mr. Richardson before placing their orders elsewhere.

Westinghouse Managers' Meeting.

The sales managers of the Westinghouse Electric & Manufacturing Co. held their annual convention at East Pittsburg in October. These meetings were inaugurated some years ago, and afford an opportunity for the mingling of ideas. Last month's meeting was conducted by Messrs. E. M. Herr, first vice-president, and L. A. Osborne, second vice-president, assisted by C. S. Cook, manager of the railway and lighting departments; S. L. Nicholson, manager of the industrial and power department; C. B. Humphrey, manager of detail and supply department, and Walter Cary, general manager of Sawyerman Electric Co. The company's officials gave a banquet to the visiting managers, and prominent officials of associated interests were present. These included Col. H. G. Prout, vice-president of Union Switch & Signal Co.; John F. Miller, fourth vice-president of Westinghouse Air Brake Co., and E. H. Sniffin, third vice-president Westinghouse Machine Co.

The American Wire Reinforcing.

An extensive contract for concrete construction now in progress is the power-house, barns and general shops of the Twin City Rapid Transit Co., Minneapolis. There will be a car station 121x360 feet, paint shop 126x300, machine shop 150x300, blacksmith shop 60x300, mill shop 75x200, foundry 60x300 and drykiln 75x150, all costing about \$500,000. The only place where anything is used other than concrete will be the door and window frames and board floors laid on top of concrete. An interesting fact in connection with this construction work is that all girders and beams are wrapped with high-carbon wire fabric, and the floors and roof are reinforced with the same material made by the American Wire Fence Co., 189 Lasalle street, Chicago, Ill. The question of reinforcing for the concrete was one of the most vital features, and it was only after exhaustive tests for strength and economy that the American system was adopted. It consists of round rods and woven-wire fabric, both of high carbon steel, having twice the amount of tensile strength with ideal distribution of metal in the concrete, continuous bond on all sides of the building, less cost in application on the work and at very lowest cost. Tables showing safe loads, description of other extensive work done and any information on concrete will be sent on request. Address the American System of Reinforcing for Concrete Construction, 189 Lasalle street, Chicago.

New Pneumatic Grinder.

The Independent Pneumatic Tool Co. of Chicago and New York has placed on the market a new air machine, designated as the Thor pneumatic grinder No. 7, designed for grinding, polishing and buffing purposes. This machine is of the reciprocating piston type, having four pistons, direct acting on the crank, and is equipped with the Thor Corliss valve motion, which gives it a great deal of power and a speed of approximately 3000 R. P. M. The grinding spindle proper is held in the housing extended from the end of the motor in line with the crank shaft. It is not a part of the crank shaft, however, but connected with the same. The grinding spindle itself runs on bearings that are a combination of ball and plane bearings. There is a large bronze bearing next to the motor, and then a four-point ball bearing, which acts as a thrust bearing both ways, and also as a support for the shaft. At the outer end is a metallic packing that also acts as a bearing, and at the same time prevents the lubricating oil from running out of the machine. The motor and shaft run in a bath of oil, and the peculiar bearings for the grinding spindle make it possible for this to run at a high speed without getting hot or losing its lubricant. A grip handle in line with the grinding spindle and the outside of the housing of same spindle serve as handles. Mandrels of any suitable length or shape may be attached to the grinding spindle for driving emery wheels, soft polishing wheels or discs. The machine weighs about 20 pounds, consumes approximately 20 cubic feet of free air per minute, and is very easily handled and operated. Several large plants have made exhaustive tests of it and claim they give entire satisfaction, being very economical. The Independent Pneumatic Tool Co. will send machines on approval to users desiring to make a test.

TRADE LITERATURE.

Christensen Straight Air-Brake Equipments.

Bulletin No. 1508 of the Allis-Chalmers Company illustrates and describes the Christensen straight air-brake equipments manufactured by the company in its works at Milwaukee, Wis.

Valuable Fire Departments.

Purchasers of fire-department equipment and supplies are interested in knowing where the best hose can be obtained. They will find hose facts of value in an illustrated folder which the Eureka Fire Hose Co., 13 Barclay street, New York, is distributing. This publication tells about the 23 brands of hose manufactured by the company.

Profits in Cotton Milling.

The October number of "Cotton Chats" contains but one article, and that is entitled "Possible Profits." The question of possible profit is one that every cotton-mill management is especially interested in, and some pertinent facts are presented in the article mentioned. It is especially in connection with the operation of improved looms that the possible profits are considered. Write the Draper Company, Hopedale, Mass., for the October "Cotton Chats."

Devoted to Things Electrical.

When a publication is devoted to the interest of things electrical, and to those good people who want to get a little good wisdom combined with a little good fun, it should certainly command a wide circle of readers. This has been accomplished by the "Everbest Magazine." Many people are now reading this monthly, and additional readers are wanted. The October number is especially interesting. Published by Ewing-Merkle Electric Co., 1106 Pine street, St. Louis.

Water-Works Specialties.

Buyers of specialties for water-works are invited to examine a recent pamphlet presenting interesting letters from various municipal officials and private water-works companies throughout the country. They will find these letters to contain some emphatic endorsements of the improved flanged sleeves and valves for tapping machines and other water-works specialties manufactured by the Water-Works Equipment Co., W. H. Van Winkle, general manager, 180 Broadway, New York.

The Westover Paper Co.

Several leaflets issued by the Westover Paper Co. are of interest as indicating the character of products the company handles. They include references to the Westover indestructible roofing for steep or flat roofs on any kind of building, paper bags of various sizes and qualities, prepared gravel roofing, different kinds of building papers, paper and wood dishes and other articles in demand. The Westover Paper Co. is located at 1303 East Main street and 7 South 13th street, Richmond, Va.

The Automatic Electric Co.'s Plant.

An excellent photograph, framed in accordance with its merit, showing the plant of the Automatic Electric Co. of Chicago, has been received by the Manufacturers' Record. The picture is an ornament to any office and keeps the occupant reminded of the fact that the Automatic Electric Co. is the manufacturer of the automatic telephone exchange. The company claims to have the largest exclusive telephone and switchboard manufacturing plant. It has enlarged its factory three times in order to meet the demand for its specialties.

Facts of Oklahoma City.

Capitalists who may be considering investments, manufacturers who may think of locating plants and people who may be desirous of establishing homes and enterprises in a new section of the country should not fail to be informed regarding Oklahoma City, O. T. This progressive city invites people to examine its present establishments, its municipal improvements, its industrial advantages and its general requisites for continued progress and prosperity. The facts will be found in a brief but comprehensive booklet being distributed by the Oklahoma City Chamber of Commerce.

Sullivan Pneumatic Hammer Drills.

There has been an increasing demand during recent years for a light one-man machine drill to replace hand work in mines and quarries and on contracts. For this service the Sullivan plug drills have been doing satisfactory work in the various fields where they have been used for the last eight or ten months. The maker of these drills states they have replaced hand work in a

large number of quarries in all parts of the country. The Sullivan Machinery Co. of Chicago has issued Bulletin 51 to present details regarding the Sullivan pneumatic hammer drills for quarrying and contract work.

The Dey Time Register.

Ten reasons why every employer should use a Dey time register are presented in a leaflet now being distributed. This leaflet also states 10 advantages of the Dey time registers. These devices have come into extensive use, and their value is being appreciated as registers of the time of employees in small and large plants. They embody factors which promote economy and efficiency in the manufactory, and employers who are progressive will not fail to investigate them. The Dey Time Register Co., Syracuse, N. Y., is the manufacturer. Mr. Robert Craven, 339 Calvert Building, is representative in Baltimore, Md.

Muskogee, I. T.

That great industrial developments are destined to be seen in the Southwest is indicated by agricultural and manufacturing progress now existing in that section. Among the progressive cities of Indian Territory is Muskogee, with a population of more than 20,000, having numerous advantages. It has ample transportation facilities, and located in the Cherokee Nation, where agricultural and mineral developments are in active operation. The Muskogee Commercial Club issues attractive literature, including a pamphlet containing a number of photographic views of important public buildings, private residences and other structures in Muskogee.

Electric Blueprinting Machines.

That there was a demand for a medium-priced, well-constructed and efficient apparatus for making blueprints by electric light at any time during the day or night, regardless of weather conditions, has been demonstrated by the sales of electric blueprinting machines. The Buckeye electric blueprinting machine was designed to supply this need in establishments where blueprinting is required. Improvements, resulting in increased economy, rapidity and uniformity of prints, have recently been effected in the Buckeye equipment, and the manufacturer is sending out an illustrated descriptive booklet to tell about the new features. The Buckeye Engine Co. of Salem, Ohio, is the manufacturer.

When to Extinguish the Blaze.

"The time to put out a fire is when it starts." Those who may be interested in this direction will find valuable hints in the United States Sprinkler Bulletin of September 29. This publication is issued in the interest of fire protection. In its latest issue the fire-protection equipment of Messrs. Sears, Roebuck & Co. of Chicago is described, accompanied by photographic views. Other data of interest is a table presenting a summary of 238 fires reported during the three months ending September 30. These fires were under the Grinnell sprinklers, which protected the various establishments named from disastrous conflagrations. The General Fire Extinguisher Co. of Providence, R. I., manufactures the apparatus, of which the Grinnell extinguisher is the principal feature. It also publishes the Bulletin mentioned.

Cincinnati Company Enlarging.

The Cincinnati (Ohio) Equipment Co. is making extensive additions and improvements to its works, including building a new woodworking shop 40x120, to be of reinforced concrete and steel construction throughout, and the complete remodeling of yards. These improvements are made necessary by the company's growth in handling second-hand contractors' and railroad equipment. This company is one of the largest owners and rebuilders of second-hand steam shovels, locomotives, cars, etc., in this country. It has recently purchased 60 36-inch-gauge three-driver saddle-tank dinkies in one lot, and at this time owns over 40 steam shovels of all sizes and types of the different makes. Mr. Isaac Joseph is president; H. L. Hoeffer, vice-president and general manager, and P. B. Warner, secretary and treasurer of the Cincinnati Equipment Co.

The Georgia Plow Works.

Those who are interested in agriculture to the extent that they are at times in the market for improved machinery used in cultivating lands will be interested to know that the Georgia Plow Works of Atlanta, Ga., has issued a new catalogue. This catalogue contains many illustrations and prices of finished steel plow shapes, single and double plow stocks, cast and carbon plows, arc-side harrows, cotton scrapers, garden plows, etc. These products of the Georgia Plow Works are doubtless destined to be in large demand throughout the South and

West. They are made in a most modern plant equipped with the latest labor-saving electric-driven machinery, and the patterns have been carefully selected from shapes adopted to the varied soils of the South and West. It is especially to be noted that the Georgia Plow Works was previously known as the Atlanta Plow Works. The change of name was made because of possible confusion with another enterprise having a similar title.

The Dart Patented Specialties.

A number of important specialties in general use and being called for in increasing quantities every day as purchasers become better acquainted with their merits are manufactured by the E. M. Dart Manufacturing Co. of Providence, R. I. These specialties include malleable iron bronze-seat ground-joint union couplings and flange unions, both plain and galvanized; cast-iron bronze-seat ground-joint flanged unions, malleable iron bronze-seat ground-joint elbow unions, stop cocks for steam, gas, water, oil, etc.; gas-fixture appliances, and an improved steam glue heater. The Dart specialties are used both at home and abroad, the Western Valve Co. of Chicago and the Fairbanks Company of New York, Baltimore, New Orleans and other cities being agents for them. The glue heater mentioned combines factors demanded by users. It is said to require no attention, to be indestructible and very economical in operation. It has copper kettles with covers. The device rapidly performs the cooking and heating of glue by combining the essential features in one arrangement.

Perfection Power Block Machines.

Building contractors, architects who plan structures and people who own them are evidencing increased interest in hollow-concrete building blocks. Because of this it is pertinent to refer to the machine manufactured by the Perfection Block Machine Co., Kasota Building, Minneapolis, Minn. This is a power machine which the company states "makes a block perfect in form and of uniform size and quality. The concrete is accurately measured, mixed by power and subjected to a pressure of over 100 tons. It makes 60 to 100 blocks per hour with five to eight men at one-half the cost for labor by any other process." The Perfection power-block machine is already in operation in different parts of the country as well in foreign lands. It is fully described, accompanied by explanatory illustrations of the equipment and its products and methods of building with them, in a pamphlet issued by the manufacturer. Inquiries are invited by the Minneapolis office and by M. K. Sawyer, Eastern representative, Cadillac Hotel, Broadway and 43d street, New York.

Star Safety Water-Tube Boilers.

Engineers and others interested in safety water-tube boilers for power, steam heating and hot-water heating will find it worth their while to investigate the Star boilers if they are not already acquainted with the merits of that design. The manufacturer of the Star safety water-tube boiler states that it is a self-contained internally-fired water-tube boiler, embodying, after 15 years' use, all the most improved and advanced details in construction which service under varying conditions has demonstrated to be desirable. It presents a new edition of the Star catalogue, giving a practical, technical discussion of the points to be considered not only in Star boilers, but in all other boilers. Complete tables of dimensions and sizes are also presented. The text of the catalogue refers to the essential operating requirements in a steam boiler as the proper combustion of fuel and the complete absorption of the heat of combustion. It tells how the Star boilers accomplish these objects. The A. D. Granger Company, 95 Liberty street, New York, manufactures the Star safety water-tube boilers.

"J.-M." Asbestos Roofings.

The roofing trades, architects who specify roofing materials, owners who are interested in the protection of buildings and others who want to know the facts regarding improved roofing materials will find their need for information met in catalogue No. 302 of the H. W. Johns-Manville Company, 100 William street, New York. This publication is one of the most comprehensive ever issued on roofing. It presents miscellaneous treatises on how to repair roofs, formal specifications for architects and various other articles of general information, besides specific statements as to the merits of the "J.-M." asbestos roofings. These are largely in use throughout the country and being steadily called for in greater quantities. The "J.-M." brands of roofing, siding, roofing cements and other materials are explained and their plate catalogue cannot be shown, but the Weinman Company has endeavored to illustrate and list such machines as will meet

the ordinary requirements, and it solicits opportunities to quote prices to prospective purchasers of pumping machinery for special cases. Sufficient general information and tables will be found in the catalogue to assist purchasers in easily selecting pumps for most purposes. Where conditions cause a doubt as to what is best suited for any special case, the company will be pleased to give special advice upon receipt of details.

The E. W. Bliss Machinery.

Purchasers of and the trade interested in presses, dies and special machinery are advised that the E. W. Bliss Company has issued a new catalogue. This publication is one of the most complete of its kind ever issued and shows a complete line of the most improved machines for manufacturing sheet-metal goods. In designing and building this class of machinery the company has been eminently successful, its products being known to the manufacturers not only of the United States, but of every civilized country. The new Bliss catalogue is a cloth-bound book of 578 pages replete with illustrations of numerous presses, dies and similar machinery and supplies manufactured by the company. It contains hundreds of illustrations to assist readers in understanding the accompanying descriptive text. The E. W. Bliss Company comprises also the Styles & Parker Press Co., the Orr & Hess Machine Co., Ltd., of Philadelphia, improved machinery for making coins, medals and similar work, and the United States Projectile Co. (projectile department), recently purchased, seamless steel forgings in the shape of bowls, bottles, steel pinions, cast-steel-cut gears, special shapes, etc. Recent extensions to the Bliss Works give that plant about nine acres of floor space, and three and one-half acres have been reserved for future requirements. The E. W. Bliss Company's main offices are at Adams and Plymouth streets, Brooklyn, N. Y.

Vitrified Brick and Block Paving.

The paving of city streets is a subject of importance, affecting as it does the business prosperity, convenience and comfort of the people. Few are aware of the magnitude of the paving industry, at the beginning of the present century nearly one thousand millions of dollars having already been invested in paving, curbing and improvements of streets, and each year some seventy millions are added for further improvements and maintenance. The condition of a city's pavements is an important indication of its progressiveness and prosperity. One class of paving material which has come into extensive use is the standard vitrified paving brick and block made by the Mack Manufacturing Co., main offices in the Land Title Building, Philadelphia. This company has issued an illustrated pamphlet, one of the most comprehensive of its kind ever presented for the perusal of municipal authorities and others interested in knowing the facts regarding past experiences with various kinds of paving materials and in knowing the success which the Mack products have met with. These vitrified bricks and blocks of Mack manufacture are used extensively throughout the United States, nearly 200 cities having adopted them. In the pamphlet mentioned are many photographic views of cities where Mack paving bricks and blocks have been laid. The Mack Manufacturing Co. invites inquiries from engineers and others who are concerned in using the best materials for paving purposes.

OCEAN TO OCEAN LINE.

Harriman Elects New President of Illinois Central in Fulfilling His Plans.

At a meeting of directors of the Illinois Central Railroad, just held in New York, Mr. J. T. Harahan, second vice-president of the company, was elected president to succeed Mr. Stuyvesant Fish. All the other officers of the company whose terms expired were re-elected. Mr. Fish has been president of the company for about 20 years, and the result of the election of officers demonstrates the dominance of the influence of Mr. E. H. Harriman in the company. There was no opposition to the election of Mr. Harahan, Messrs. Fish, C. M. Beach, J. DeWitt Cutting and Governor Deneen of Illinois not voting. No successor to Mr. Harahan as second vice-president was elected.

The result of this election is taken to mean that the Illinois Central will furnish the connecting link between the Baltimore & Ohio, in which Mr. Harriman lately

purchased a large stock interest, and the Union Pacific for a transcontinental system. It is also rumored that Mr. Harriman has his attention directed toward a possible purchase of the Seaboard Air Line system, in which event he would control lines to both the North and South Atlantic coasts, as well as to the Gulf of Mexico and the Pacific coast, the principal Atlantic outlet of such a great combination being at a Southern city, namely, Baltimore.

The immediate effect of Mr. Harriman's control of Illinois Central will, however, be to give his lines an outlet from the North to the Gulf of Mexico at New Orleans.

For Ice Plant and Cotton Mill.

In writing to the MANUFACTURERS' RECORD regarding opportunities for the establishment of industrial plants at Ballinger, Texas, Charles S. Miller, president of the State Bank & Trust Co. of that city, says: "There is a fine location here for an ice plant, and my brother, W. J. Miller, and George Vaughn, who own the controlling interest in the Missouri Milling Co. at this place, would go in with the right parties to install an up-to-date plant. This city also presents a good opening for a cotton mill, as not half our lands as yet are in cultivation, and we expect this season fully 40,000 bales of cotton for Ballinger."

FINANCIAL NEWS

The MANUFACTURERS' RECORD invites information about Southern financial matters. Items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

Review of the Baltimore Market.

Office MANUFACTURERS' RECORD, Baltimore, Md., November 7.

In the Baltimore stock market during the past week business was generally quiet, with but little change in prices. United incomes, Maryland Trust certificates, sold at 69; United Funding 5s from 89 to 89½; the 4s from 88½ to 89; United Light & Power 4½s, 93¼ to 93; Consolidated Gas 6s from 106½ to 106¾; Gas 4½s, 97 to 96¾; Seaboard new common at 24½ to 24¾; Seaboard 4s, 82½; the 10-year 5s from 100¼ to 100½; Consolidated Cotton Duck common, 12½; do, preferred, 34 to 33; Mt. Vernon & Woodberry Cotton Duck 5s, 82¼ to 83; G.B.-S. Brewing incomes, 34½ to 34; do, 1sts, 58½ to 58½.

Marine Bank sold at 38½; Commercial and Farmers' Bank, blue certificates, 128 to 131; Farmers and Merchants' Bank, 51; Merchants' Bank, 177; Mechanics' Bank, 26½ to 27; Maryland Casualty, 60; Fidelity & Deposit, 132 to 134; Union Trust, 55; Maryland Bank, 20.

Other securities were traded in as follows: Northern Central Railway stock, 107 to 108¼; Baltimore Refrigerating & Heating, 20½ to 21; Atlantic Coast Line Consolidated 4s, 97½; do, Connecticut 4s, certificates, 90 to 91; Atlantic Coast Line stock, 137; Carolina Central 4s, 94¼ to 94½; Charleston & Western Carolina 5s, 110½; South Bound 5s, 110½; Detroit United Traction 4½s, 93½; Florida Southern 4s, 96¼; Baltimore City 3½s, 1940, 102; do, 5s, 1916, 109 to 109¼; City of Norfolk 5s, 106¾; Baltimore & Ohio Railroad stock, 119½ to 119; North Carolina 4s, 102 to 102¼; Consolidation Coal, 97 to 96; Metropolitan (Washington) Street Railway 5s, 113¾; Belvedere Building Co. 2d 5s, 80; Alabama Consolidated Coal & Iron preferred, 91¼; Virginia Century, 95; Atlanta Consolidated street Railway 5s, 106½; Atlanta & Charlotte 1sts, 102¼; Georgia & Alabama 5s, 109¼; Macon Railway & Light 5s, 98;

Houston Oil, 10; Baltimore City Passenger Railway 5s, 103; Norfolk Railway & Light 5s, 98¼; Georgia Southern & Florida 5s, 111¾ to 111½; Charleston Consolidated Electric 5s, 93; City & Suburban (Baltimore) 5s, 110½; Virginia Midland, 5ths, 110.

SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended November 7, 1906.

Railroad Stocks.	Par.	Bid.	Asked.
Atlantic Coast.....	100	135	136
Atlantic Coast of Connecticut.....	100	350	
Georgia Southern & Florida.....	100	32	40
Georgia Sou. & Fla. 1st Pfd.....	100	97	
Georgia Sou. & Fla. 2d Pfd.....	100	80	
Norfolk Railway & Light.....	25	18	19
Seaboard Company Common.....	100	24	25
Seaboard Company 2d Pfd.....	100	52½	54
United Railways & Elec. Co.....	50	15½	15¾

Bank Stocks.	Par.	Bid.	Asked.
Citizens' National Bank.....	10	29	30
Commercial & Far. Nat. Bank.....	100	112½	
Com. & Far. Nat. Bk. Blue Cfs.....	100	130	140
German-American Bank.....	100	110	
Merchants' National Bank.....	100	175	178
National Bank of Baltimore.....	100	116	122
National Bank of Commerce.....	15	26	
National Exchange Bank.....	100	182½	
National Howard Bank.....	10	12½	
National Marine Bank.....	30	38½	
National Mechanics' Bank.....	10	26	
National Union Bank of Md.....	100	114	

Trust, Fidelity and Casualty Stocks.	Par.	Bid.	Asked.
American Bonding & Trust.....	50	46	
Fidelity & Deposit.....	50	132	133½
International Trust.....	100	151	
Maryland Casualty.....	25	68½	69
Mercantile Trust & Deposit.....	50	137½	140
Union Trust.....	50	55	65

Miscellaneous Stocks.	Par.	Bid.	Asked.
Ala. Con. Coal & Iron.....	100	62½	
Ala. Con. Coal Iron Pfd.....	100	91	93
Con. Cotton Duck Common.....	50	12½	13
Con. Cotton Duck Pfd.....	50	33½	34
Con. Gas, Elec. Lt. & P. Com.....	36½	40	
Con. Gas, Elec. Lt. & P. Pfd.....	79		
Consolidation Coal.....	100	96½	97
G.B.-S. Brewing Co.....	100	9	
George's Creek Coal.....	100	80	
Mer. & Miners' Trans. Co.....	100	173	180

Railroad Bonds.	Par.	Bid.	Asked.
Atlanta & Charlotte 1st 7s, 1907.....	100½	102½	
Atlan. Coast Line 1st 4s, 1892.....	97½	97½	
Atlan. Coast Line 4s, Cfs, 1922.....	99		
Atlan. Coast Line (Conn.) 4s.....	89½	90½	
Carolina Cen. 4s, 1949.....	94½		
Charleston & West. Car. 5s, 1946.....	110½		
Char., Col. & Aug. 1st 5s, 1910.....	109½	110½	
Char., Col. & Aug. 2d 7s, 1910.....	109½	110½	
Coal & Iron Railway 5s, 1920.....	103½	105	
Florida Southern 4s, 1940.....	96½		
Georgia & Ala. 5s, 1945.....	109½	109½	
Ga., Car. & Northern 1st 5s, 1929.....	109		
Georgia Pacific 1st 6s, 1922.....	120		
Georgia Sou. & Fla. 1st 5s, 1945.....	111½	111½	
Md. & Penn. 4s, 1951.....	91½	92½	
Petersburg, Class A 5s, 1926.....	113	114½	
Piedmont & Cum. 1st 5s, 1911.....	102		
Potomac Valley 1st 5s, 1941.....	113		
Raleigh & Augusta 1st 6s, 1926.....	113		
Richmond & Danville Gold 6s, 1915.....	112½		
Savannah, Fla. & West. 6s.....	128½		
Savannah, Fla. & West. 5s.....	112	116	
Seaboard Air Line 4s, 1950.....	82½	83	
Seaboard Air Line 5s, 10-year, 1911.....	100¼	100¾	
Seaboard & Roanoke 5s, 1926.....	110		
South Bound 5s, 1941.....	110½	111½	
Southern Railway Con. 5s, 1994.....	110		
Virginia Midland 2d 6s, 1911.....	107½		
Virginia Midland 4th 5s, 1923.....	109½		
Western Maryland new 4s, 1952.....	82¼	83¼	
Western N. C. Con. 6s, 1911.....	111		
W. Va. Cen. 1st 6s, 1911.....	106½		
Wilmington & Wel. Gold 5s, 1935.....	115½	116½	

Street Railway Bonds.	Par.	Bid.	Asked.
Anacostia & Potomac 5s, 1949.....	102½		
Atlanta Con. St. Ry. 5s.....	106¼	107	
Balto. City Passenger 5s, 1911.....	103	104	
Central Ry. Con. 5s (Balto.), 1932.....	113½		
Charleston City Ry. 5s, 1923.....	106½		
Charleston City Ry. 5s, 1929.....	93		
City & Suburban 5s (Balto.), 1922.....	110¼	115	
City & Suburban 5s (Wash.), 1948.....	104		
Knoxville Traction 1st 5s, 1928.....	105		
Lexington Ry. 1st 5s, 1949.....	101½		
Macon Ry. & Lt. 1st Con. 5s, 1953.....	98	101	
Metropolitan 5s (Wash.), 1925.....	113¼	117	
Newport News & Old Pt. 5s, 1953.....	90	97	
Norfolk Railway & Light 5s.....	98½		
Norfolk & Portsmouth Trac. 5s.....	100		
North Baltimore 5s, 1942.....	115	118¼	
United Railways 1st 4s, 1949.....	88½	89	
United Railways Inc. 4s, 1949.....	68¾	69	
U. Ry. Inc. 4s, 1949, Md. Tr. Cfs.....	69	69¼	
United Railways Funding 5s.....	89	89¼	

Miscellaneous Bonds.	Par.	Bid.	Asked.
Ala. Con. Coal & Iron 5s.....	89½		
Con. Gas 6s, 1910.....	106	106½	
Con. Gas 5s, 1939.....	106¼		
Con. Gas 4½s.....	96½	97	
Con. Gas, Elec. Lt. & P. 4½s.....	83		
G.B.-S. Brewing 1sts.....	58½	58¾	
G.B.-S. Brewing 2d Inc.....	34	34¾	
Mt. V. & Woodby Cot. Duck 5s.....	83	83¼	
United Elec. Lt. & Power 4½s.....	93		

SOUTHERN COTTON-MILL STOCKS.

Quotations Furnished by Hugh Mac-Intyre & Co., Wilmington, N. C., for Week Ending November 5.

	Bid.	Asked.
Abbeville Cotton Mills (S. C.).....	95	
Aiken Mfg. Co. (S. C.).....	80	87½
Anderson Cotton Mills (S. C.).....	100	
Arkwright Mills (S. C.).....	122	
Augusta Factory (Ga.).....	80	85
Avondale Mills (Ala.).....	109	110
Belton Mills (S. C.).....	105	107
Brandon Mills (S. C.).....	118	120
Chadwick Mfg. Co. (N. C.) Pfd.....	120	130
Chilquola Mfg. Co. (S. C.) Pfd.....	102	105
Chilquola Mfg. Co. (S. C.).....	92	96
Clifton Mfg. Co. (S. C.) Pfd.....	102	103
Clifton Cotton Mills (S. C.).....	133	141
Columbus Mfg. Co. (Ga.).....	95	100
Courtenay Mfg. Co. (S. C.).....	92	95
Dallas Mfg. Co. (Ala.).....	92	95
Darlington Mfg. Co. (S. C.).....	61	

Eagle & Phenix Mills (Ga.).....	129	130
Enley Cotton Mills (S. C.).....	132	135
Enoree Mfg. Co. (S. C.).....	80	83½
Enoree Mfg. Co. (S. C.).....	80	81½
Enterprise Mfg. Co. (Ga.).....	86	92
Exposition Cotton Mills (Ga.).....	200	
Gaffney Mfg. Co. (S. C.).....	90	
Gainesville Cotton Mills (S. C.).....	37	40
Granby Cot. Mills (S. C.) 1st Pfd.....	59	65
Graniteville Mfg. Co. (S. C.).....	160	
Greenwood Cotton Mills (S. C.).....	91	
Grendel Mills (S. C.).....	114	
Henrietta Mills (N. C.).....	200	
King Mfg. Co., John P. (Ga.).....	97	103
Lancaster Cotton Mills (S. C.).....	103	104
Lancaster Cot. Mills (S. C.) Pfd.....	97	99
Langley Mfg. Co. (S. C.).....	92	95
Laurens Cotton Mills (S. C.).....	166	
Limestone Mills (N. C.).....	115	
Lockhart Mills (S. C.) Pfd.....	97	100
Louis Mills (N. C.).....	90	95
Louis Mills (N. C.) Pfd.....	102	
Marlboro Cotton Mills (S. C.).....	80	85
May Mills (N. C.).....	165	168
Mills Mfg. Co. (S. C.).....	105	
Mills Mfg. Co. (S. C.) Pfd.....	180	180
Monaghan Mills (S. C.).....	96½	101
Monarch Cotton Mills (S. C.).....	95	100
Newberry Cotton Mills (S. C.).....	118	
Norris Cotton Mills (S. C.).....	108	110
Olympia Cot. Mills (S. C.) 1st Pfd.....	80	
Orangeburg Mfg. Co. (S. C.) 1st Pfd.....	80	97
Orr Cotton Mills (S. C.).....	101	104
Pacole Mfg. Co. (S. C.) Pfd.....	100	104
Pelzer Mfg. Co. (S. C.).....	170	173
Piedmont Mfg. Co. (S. C.).....	170	177
Poe Mfg. Co. (S. C.).....	122	
Richland Cotton Mills (S. C.) Pfd.....	52½	
Richland Cotton Mills (N. C.).....	99	105
Roanoke Mills (N. C.).....	140	
Saxon Mills (S. C.).....	105	107
Shiley Mfg. Co. (Ga.).....	64	
Spartan Cotton Mills (N. C.).....	80	
Spartan Mills (S. C.).....	145	151
Springstein Mills (S. C.).....	100	
Trion Mfg. Co. (Ga.).....	130	142
Tucapau Mills (S. C.).....	165	
Victor Mfg. Co. (S. C.).....	119	
Warren Mfg. Co. (S. C.).....	99	100
Warren Mfg. Co. (S. C.) Pfd.....	105	107
Washington Mills (Va.).....	20	25
Whitney Mfg. Co. (S. C.).....	145	150
Wiscasset Mills (N. C.).....	122	125
Woodruff Cotton Mills (S. C.).....	110	

Quotations Furnished by William S. Glenn, Broker, Spartanburg, S. C., for Week Ending November 5.

	Bid.	Asked.
Abbeville Cotton Mills (S. C.).....	95	
Aetna Cotton Mills (S. C.) Pfd.....	70	
Aiken Mfg. Co. (S. C.).....	83	89
American Spinning Co. (S. C.).....	120	125
Anderson Cotton Mills (S. C.).....	99	103
Arcadia Mills (S. C.).....	92	95
Arkwright Cotton Mills (S. C.).....	117	
Augusta Factory (Ga.).....	80	85
Avondale Mills (Ala.).....	100	
Belton Mills (S. C.).....	104	108
Bilb Mfg. Co. (Ga.).....	115	
Brandon Mills (S. C.).....	117	120
Brogan Mills (S. C.).....	77	80
Calabazas Cotton Mills (N. C.).....	120	
Chadwick Mfg. Co. (N. C.) Pfd.....	103	
Chilquola Mfg. Co. (S. C.).....	93	95
Clifton Mfg. Co. (S. C.).....	120	125
Clifton Mfg. Co. (S. C.) Pfd.....	103	
Clifton Cotton Mills (S. C.).....	140	145
Columbus Mfg. Co. (Ga.).....	94	97
Courtenay Mfg. Co. (S. C.).....	100	
Dallas Mfg. Co. (S. C.).....	90	
Darlington Mfg. Co. (S. C.).....	60	65
D. E. Converse Co. (S. C.).....	117	
Eagle & Phenix Mills (Ga.).....	120	
Enaley Cotton Mills (S. C.).....	130	135
Enoree Mfg. Co. (S. C.).....	80	85
Enoree Mfg. Co. (S. C.) Pfd.....	100	103
Enterprise Mfg. Co. (Ga.).....	82	90
Exposition Cotton Mills (Ga.).....	174	200
Gaffney Mfg. Co. (S. C.).....	85	90
Gainesville Cotton Mills (Ga.).....	35	
Glenwood Cotton Mills (S. C.).....	102	104
Gluck Mills (S. C.).....	94	98
Granby Cot. Mills (S. C.) 1st Pfd.....	50	
Graniteville Mfg. Co. (S. C.).....	155	165
Greenwood Cotton Mills (S. C.).....	92	98
Grendel Mills (S. C.).....	115	
Henrietta Cotton Mill (S. C.).....	32	97
Henrietta Mills (N. C.).....	200	
Inman Mills (S. C.).....	96	97
King Mfg. Co., J. P. (Ga.).....	97	103
Lancaster Cotton Mills (S. C.).....	102	110
Lancaster Cot. Mills (S. C.) Pfd.....	95	99
Langley Mfg. Co. (S. C.).....	92	96
Laurens Mills (S. C.).....	160	165
Limestone Mills (S. C.).....	104	107
Lockhart Mills (S. C.).....	99	102
Lockhart Mills (S. C.) Pfd.....	9	101
Loray Cotton Mills (N. C.) Pfd.....	89	96
Louise Mills (N. C.).....	90	95
Louise Mills (N. C.) Pfd.....	84	102
Marlboro Cotton Mills (S. C.).....	84	
Mave Mills (N. C.).....	150	300
Mills Mfg. Co. (S. C.).....	90	99
Mills Mfg. Co. (S. C.) Pfd.....	90	101
Molohon Mfg. Co. (S. C.).....	87	95
Monaghan Mills (S. C.).....	90	100
Monarch Cotton Mills (S. C.).....	97	
Newberry Cotton Mills (S. C.).....	115	
Ninety-Six Cotton Mills (S. C.).....	92	97
Norris Cotton Mills (S. C.).....	106	
Odell Mfg. Co. (N. C.).....	90	
Orangeburg Mfg. Co. (S. C.) Pfd.....	80	
Orr Cotton Mills (S. C.).....	100	104
Pacolet Mfg. Co. (S. C.).....	180	190
Pacolet Mfg. Co. (S. C.) Pfd.....	102	104
Pelzer Mfg. Co. (S. C.).....	167	175
Piedmont Mfg. Co. (S. C.).....	167	
Poe Mfg. Co., F. W. (S. C.).....	120	125
Raleigh Cotton Mills (N. C.).....	90	100
Richland Cot. Mills (S. C.) Pfd.....	50	
Ronoake Mills (N. C.).....	118	
Saxon Mills (S. C.).....	104	105
Silo Mfg. Co. (S. C.).....	58	63
Southern Cotton Mills (S. C.).....	142	150
Spartan Mills (S. C.).....	142	150
Springstein Mills (S. C.).....	100	
Trion Mfg. Co. (Ga.).....	132	140
Tucapau Mills (S. C.).....	165	
Victor Mfg. Co. (S. C.).....	115	
Warren Mfg. Co. (S. C.).....	97	100
Warren Mfg. Co. (S. C.) Pfd.....	105	
Washington Mills (Va.).....	25	
Washington Mills (Va.) Pfd.....	100	105
Whitney Mfg. Co. (S. C.).....	145	
Wincassett Mills (N. C.).....	119	
Woodruff Cotton Mills (S. C.).....	115	125

